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Railway Wage Demands and Costs

THE British railway industry has suffered as much as any in the country in recent years, from constant demands by its employees for higher pay. The most recent of these, coupled with the threat of a strike just before Christmas, was merely the last of a long series. The manner in which the railway unions have pressed for improved rates for their men has become almost monotonous in its regularity and the industry has had little respite between successive demands. It may be that the impression has been gained, not only among the unions but also among the public, that the railways are in a particularly fortunate position in the granting of pay increases because they have a machinery under which the resultant advances in cost can be passed on to the travelling and forwarding public in higher fares and charges. The unions may have come to believe that this facility is almost as automatic in its operation as their wage claims. Because the railways are an essential service and not manufacturers of a product having to sell goods in competition with other producers, the effect of the rising price of transport has been disguised. It is none the less real, and the ultimate effect cannot be much different from that of a manufacturer whose costs get out of line with the resources of the public pocket. Already the effect on first class railway travel has been very grave. The possibility of the railways pricing themselves out of the market except for goods which cannot pass by other means is a danger which must not be overlooked. The point has now been reached at which, although the 4s. wage increase agreed before Christmas will probably have to be passed on in higher charges, the railways are being forced, as would any competitive industrial undertaking, to seek to offset by internal economies any further betterment in the men's payroll. There can be little doubt that there is scope for this. It is certainly in the interest of the members of the unions for them to co-operate.

Railway Accidents in 1952

THE annual report for the year 1952 of the Chief Inspecting Officer of Railways, Lt.-Colonel G. R. S. Wilson, shows that 1,243 train accidents were reported in the twelve months, compared with 1,280 in 1951 and an average of 1,250 for 1946-50. The great majority were minor cases, for which more comprehensive reporting came into force under an order of 1945, which cancelled a modified wartime form of dealing with these and related matters. The total of 386 fatalities in all movement by rail, equal to 0·9 per million train-miles, has to be compared with 283 for 1951, which was the lowest so far recorded, and with averages of 347 and 338 for 1946-50 and 1935-39. Of the 1,243 train accidents 20 were responsible for 133 fatalities, but of these, 108 passengers and four servants lost their lives in a single accident, that at Harrow & Wealdstone on October 8, 1952, the second worst in British railway history. The remaining 21 fatalities included twelve occupants of road vehicles struck at level crossings and only one passenger killed in a train collision at Guildford. Except, therefore, for the Harrow calamity, the year was a remarkably good one.

Signalling Irregularities

SOME 45·5 per cent of train accidents were caused by irregularities or want of care on the part of operating staff. Signalmen were answerable for 41 collisions and derailments, in which there were thirteen cases of irregular block working. Train crews were responsible for 188 collisions and derailments compared with 194 in 1951. The report emphasises that the higher actual numbers compared with signalmen's errors reflect the entirely different character of the work and do not suggest that enginemen and guards are less conscientious than signalmen. There were 66 accidents arising from signals not being obeyed. Thirteen might have been prevented by A.T.C. of the warning type, and Lt.-Colonel Wilson records the decision of the British Transport Commission to initiate a programme for extension of warning A.T.C. when the reliability of the system under trial has been established. There was a marked improvement in the number of accidents arising from technical defects, but the figure of 166 was much the same as the average for 1946-50, which is surprising in view of the very considerable improvement which has taken place in the general condition of locomotives and rolling stock and track in the past few years.

Indo-Pakistan Passenger Services

THE first through passenger service to be resumed between the Republic of India and Western Pakistan is reported to be that between Amritsar and Lahore. This before Partition formed part of the main line of the North Western Railway and important trains from the south and east, such as the "Frontier Mail" from Bombay and the "Punjab Mail" from Calcutta, ran through to Lahore, whilst the "Frontier Mail" went on to Peshawar. Their termination at Amritsar has been the result of political rather than economic considerations, which latter seem to have caused the reopening of the frontier. Between Eastern Pakistan and India, on the other hand, there have been

restricted through passenger services for some time, though with long halts for Customs and immigration formalities at the frontier, whilst such passenger traffic between Calcutta and Assam as does not go by air is routed largely by the Assam Link line, built to avoid Pakistan territory. Of the several lines crossing the frontier of India and Western Pakistan which formerly conveyed passenger traffic, the Indian Government is stated to have proposed the reopening of three. The second presumably is the metre-gauge line of the former Jodhpur Railway across the desert between Hyderabad and Marwar, linking Sind with Rajputana and other parts of India. The third may well be the Southern Punjab line, which links Delhi with Lahore via Bhatinda and Ferozepore. These three lines probably are sufficient for most of the passenger traffic likely to pass between the two countries in the near future, though demands for increased travel facilities may be made in respect of the various local lines.

The New Zealand Accident

THE worst disaster in their history overtook the New Zealand Railways last week when a Wellington-Auckland express, composed of all-steel coaches, plunged from a flood-damaged bridge, with much loss of life. The accident, doubly tragic in that it happened on Christmas Eve and at the start of the Royal tour of New Zealand, recalls another bridge mishap which occurred at Christmastide nearly three-quarters of a century ago—the collapse of the first Tay Bridge in 1879 while a train was crossing. The Tay Bridge, however, failed because of a weakness in design, but the accident at Tangiwai, it seems clear, can be ascribed to no human or mechanical fault. A volcanic eruption caused an abnormal flow of water in a usually shallow river, which tore away the central concrete piers of the bridge just before or during the passage of the train. The floods of 1948 which swept away bridges on our East Coast main line and those which caused much damage last year in East Anglia and Kent are reminders that such contingencies are not confined to one continent and cannot be foreseen. The disaster at Tangiwai, grievous as it is, has not impaired the inherent safety of railway travel, in New Zealand or elsewhere.

Malaya-Thailand Through Passenger Service

RESTORATION of the through international bi-weekly passenger service between Prai (Penang) and Bangkok as from January 3 is an indication of the degree of return to normal conditions on the Malayan and Thailand railways. The resumption was delayed largely by destruction during the war of the Surat Thani bridge in Thai territory, involving transhipment across the river. The trains now run into and out of Bangkok Central Station over the Rama VI Bridge which spans the Chao Phya River in Bangkok and was reopened to traffic last month. The restored through service gives an overall journey time between Prai and Bangkok of 28 hr. for the 726 miles, with all stops including the long halt at the frontier at Padang Besar, only one hour more than prewar and very creditable for metre-gauge single line. The high average speed necessitated by the schedule over the Thailand State Railways has been made possible by the diesel traction of which some account was given in our issue of May 8, 1953. The trains are composed of up-to-date stock including sleeping and refreshment cars, affording one of the most comfortable journeys which may be undertaken anywhere in Asia. With the growth of air travel in Asiatic countries it is significant that there should be a demand for this type of long-distance rail facility.

New Works at Potters Bar

UNLIKE the Midland and West Coast routes, the East Coast route to the north is not provided with four roads continuously for a considerable distance out of London. There is multiple trackage for only just over ten miles from Kings Cross, to Greenwood, north of New Barnet. There the four lines converge to two for the next 2½ miles, which include three tunnels and the two stations of Hadley Wood and Potters Bar, after which there are again four roads to Welwyn Viaduct, some 21 miles out. Although some relief is given by the Cuffley loop, which offers an alternative route between Wood Green and Stevenage via Enfield and Hertford, the elimination of the restrictive section of the main line itself is the obvious solution from an operating standpoint, particularly as traffic at Potters Bar has much increased in recent years. The work is now being undertaken, in two stages, the first involving widening and station rebuilding at Potters Bar, which is making good progress, as shown in an article elsewhere in this issue. The remainder of the scheme, still to be begun, will be a major project involving the boring of three new double-line tunnels, duplicating the two at Hadley Wood and that at Potters Bar.

Trailer Transport on Rails

MUCH interest is being shown in Canada and the U.S.A. in the development by several railways of the transport on railway wagons of road trailers, two of which can be mounted in tandem on the longer bogie wagons adapted for this purpose. This method has an advantage over containers in that the latter themselves are mobile; they are brought from their originating depot to the railhead by tractor, run on their wheels on to the wagons, and similarly worked by tractors from the rail terminal to destinations. The amplitude of the American loading gauge makes it possible to carry covered trailers of considerable size on railway wagons. A recent poll of industrial and commercial traffic managers as to their reactions elicited a record response of 81 per cent, as showing the general interest in the subject, but 83 per cent of those who voted advocated early general adoption of this method. Some 14 per cent of votes were adverse. In certain quarters a warning has been sounded, that the railways, by quoting preferential rates for this type of freight movement, should not lose some of the freight they now carry by normal methods at the standard rates.

Track Crossings in U.S.A.

THE American Roadmasters & Maintenance of Way Association recently discussed the relative merits of rigid and spring crossings in the track. The cheapest description of crossing is the rigid type built up from ordinary rails that have been machined, and the most expensive the rigid type in which, as is common in American practice, the nose and knuckle portion is an insert of manganese steel in the form of a solid casting; between these in cost comes the spring crossing. The general opinion was that location rather than cost should decide the type of crossing to be used, that the rigid type of crossing was preferable for acute crossings of 1 in 16 or sharper, and that spring crossings in general should be used for those of 1 in 12 or less. It was thought desirable always to use rigid crossings on the outside of curves, and in crossovers between main and other tracks, as distinct from junction turnouts. Whereas the worn parts of rigid crossings built up from ordinary rails, and those of spring crossings, can be built up by field forces with oxy-acetylene welding, it was pointed out that those with manganese steel inserts require the more expensive electric welding plants for this purpose, so that both in purchasing and in service the latter prove the more expensive.

Italian Signal Diagram Symbols

THE symbols now agreed on as standard for signalling plans and diagrams used by the Italian State Railways are reviewed by Signor G. Vicuna in *La Tecnica Professionale*. The necessity for some such standard arrangement has long been recognised in all countries and several different schemes have been put forward, and adopted in certain cases. There are considerable differences between

them, as a rule arising from differences of practice in signal aspects. The form and methods of working of mechanical type signals influence the character of the symbols to be used. In the case of discs which disappear when " off " and stand normally in that condition each would appear the same on a plan, if represented true to fact, and some other convention must be resorted to. With light signals also there are some difficulties, althought it is easier to arrive at something to which most countries could agree, as special features such as flashing lights are at times met with. Italian colour-light signals can show five aspects if required; red, yellow, yellow and green, flashing yellow and green, and green. Considerable use is made of the searchlight type. The Italian practice of mounting stop and distant arms on one centre line also influences the form of the symbols to be used for them. The single line system of track representation is used, much the clearest way of showing distinctly the positions of points, for which purpose many ideas have been advanced in the past.

The Irk Valley Collision

THE serious collision at Irk Valley Junction on August 15, 1953, was another case of a signalman taking a chance, breaking an important regulation, with the very thing the regulation is intended to guard against, in this instance, disregard of signals, occurring. It emphasises also how much local circumstances can influence the gravity of an accident. This took place on a viaduct and the leading coach of the train at fault was diverted so violently as to crash through the parapet and fall off the structure. One can only speculate on the cause of the motorman's failure. A disagreeable feature of the case was the indiscipline in signalboxes, especially the sending of " Is line clear?" long before it was received from the box in rear, and the still worse practice of switching out without notifying properly the adjacent boxes. This latter behaviour Colonel D. McMullen, whose report is summarised in this issue, characterises as unpardonable, as indeed it is. We do not recall this particular action as featuring in an accident report before, but switching in unknown to gatekeepers has been found to lead to fatal mistakes. The only remedy for indiscipline is to take effective steps to get rid of it and by sound training and supervision ensure that conscientious performance of duties takes it place, without which the object of the best safety equipment is liable to be defeated. The seriousness of the questions raised by this accident has been realised in the appropriate quarters, and action duly taken.

London Transport Last E.P. Semaphore

WHEN it was decided to adopt continuous track circuiting with electro-pneumatic signals, train stops, and points for the electrification of the District Railway, and for the three tubes for which those carrying out that change were responsible, a particularly neat type of semaphore arm combined with operating cylinder just below was introduced. This is believed to have been the work of the late W. A. Pearce, for many years a well-known signal apparatus designer. Many of these signals were installed and gave extremely good service. Few semaphores have exceeded them in appearance and none can have functioned better. In the tunnels e.p. cylinders operating spectacles only were used, but light signals with no moving parts eventually replaced them. When such signals were developed to a point where they could be used in the open the way was cleared for introducing a uniform system of aspects, day and night, but the semaphores continued in service, except in new work, for a long period. London Transport has for some time been carrying through a programme of signal aspect standardisation, incorporating the position-light junction indicator, with colour-lights for all running indications. Under this process the once familiar semaphore has been gradually disappearing, and the last e.p. arm was removed from Hanger Lane junction, west of Ealing Common, on November 21, 1953, as seen on page 16. It must have been on this section that such signals first went into regular service.

Loan for British Rolling Stock for Brazil

THE International Bank for Reconstruction & Development is to make two loans totalling some £8,000,000 to Brazil. One, amounting to £4,464,000, will be used in part payment for electric rolling stock to be built in Britain for the Rio de Janeiro suburban service of the Central Railway of Brazil. It is understood that the Metropolitan-Vickers Electrical Co. Ltd. is the manufacturer concerned and that the rolling stock to be supplied consists of 100 motor coaches, 100 trailers, and components for 100 trailers to be assembled in Brazil, with spare parts. The loan is the outcome of a recommendation which was made by the Brazil-United States Commission for improvement of the Rio de Janeiro suburban services of the Central Railway, including the acquisition of new rolling stock and permanent way renewal, and was approved by President Vargas.

The Metropolitan-Vickers Electrical Co. Ltd. carried out the original electrification of these lines, the first public service beginning on July 10, 1937. A description of the project appeared in our *Electric Railway Traction Supplement* of March 4, 1938. Electrification of the Rio de Janeiro suburban lines of the Central Railway had been regarded as urgent for many years before a contract was finally signed with Metrovick in 1935 for the conversion of 147 route-km. of 5-ft. 3-in. gauge line, at 3,000 V. d.c. and the supply of 60 three-car units each accommodating 640 passengers. The steam-hauled suburban trains were being grossly overcrowded and quite unable to cope with the growth of traffic brought about by the rapidly increasing population of Rio de Janeiro and its suburbs. Subsequent extensions have brought the electrified route-mileage to 193 km. (416 track km.). On the main line, electrification extends as far as Barra do Pirai, 109 km. from the Dom Pedro II terminus in Rio, and the junction of the routes to Sao Paulo and Bello Horizonte.

Such has been the continued increase in population in the zone served by the electric trains—50 per cent in ten years, to 2,400,000—that the Central Railway is once again finding the greatest difficulty in coping with its suburban traffic, even though the original rolling stock has been supplemented by post-war deliveries of coaches and equipment from Metrovick, bringing the total number of units in service to 98.

It is highly satisfactory that this year, which will see the centenary of Brazilian railways, with whose progress Britain has been closely associated from the outset, finds British industry continuing to play a prominent part in their development, particularly in introducing or extending electrification. Sao Paulo, the second city of Brazil, and probably the most rapidly growing city in the world, is also served by British-built electric trains, supplied by English Electric, which has collaborated with British Insulated Callender's Cables Limited in the electrification of part of the Santos-Jundiai (former San Paulo) Railway. The Rêde Mineira de Viaçao, an extensive, mainly metre-gauge, system, serving the four States of Goias, Minas Geraes, Sao Paulo and Rio de Janeiro, operates 14 Metropolitan-Vickers—Beyer, Peacock 1,070-h.p. locomotives of the Bo-Bo type, similar to ten which this company has supplied to another large metre-gauge system, the Rêde de Viaçao Parana-Santa Catarina.

Queensland Railways

THE report for the year ended June 30, 1953, of Mr. G. V. Moriarty, Commissioner for Railways, Queensland, shows a deficit of £4,330,318 on the year's working, compared with one of £3,392,278 for the preceding period. Gross earnings rose by £2,642,090 to £25,165,200. The increase in expenditure was £3,272,978, bringing the total for the year to £27,329,498. It was brought about mainly by wage increases and the greater cost of stores and coal issues; on the other hand, working expenses did not have to bear, as in 1951-52, the debit for an additional pay period.

The passenger traffic statistics reflect the increase in both country and suburban travel; suburban passenger journeys totalled 29,244,448, compared with 25,723,996 in 1949-50 and 23,156,618 in 1947-48. The tonnage of paying goods traffic (6,308,753) carried was a new record, not even excluding the war years. The greatest increase was in the carriage of sugar cane and sugar, but the tonnage of grain hauled also rose considerably; coal and timber tonnage showed a decline. The tonnage of livestock, 781,831, was a record.

Some of the principal results are given in the following table:—

	1951-52	1952-53
	(thousands)	
(*a*) 3 ft. 6 in. gauge lines—		
Passenger journeys	34,840	35,656
Passenger train-miles	6,542	6,720
Goods tonnage carried	6,457	7,091
Goods and mixed train-miles ...	11,879	11,618
	(£ thousands)	
Passenger, parcels, etc., receipts ...	3,893	4,009
Goods traffic receipts	17,887	20,390
Total earnings	22,523	25,165
Working expenses	24,057	27,329
	(thousands)	
(*b*) 4 ft. 8½ in. gauge lines—		
Passenger journeys	189	188
Goods tonnage carried	366	346
	(£ thousands)	
Total earnings	834	820
Working expenses	603	667

As a means of reducing revenue expenditure, regular overtime which was being worked in workshops was discontinued; approximately £500,000 per annum will be saved thereby. Increased rates and fares introduced on August 1, 1953, are expected to yield about £2,500,000 more revenue during the current year.

One of the reasons for the decrease in train miles was the use of diesel-electric locomotives in goods working, with resultant greater train loads handled. It is estimated that the haulage by diesels of goods trains in the Brisbane and Toowoomba districts saved about 85,000 steam goods train miles. The rise in passenger train miles was accounted for mainly by the provision of more suburban services.

Twenty new locomotives entered service. The steam locomotives were nine "C17" class goods engines delivered by Walkers Limited, Maryborough, and one "DD17" 4-6-4 suburban tank engine built at the Ipswich workshops of the railway. The ten diesel-electrics supplied represented the fulfilment of an order with the Australian General Electric Pty. Ltd. for the delivery of locomotives constructed by International General Electric (U.S.A.). The diesels were first used on wheat trains on the Brisbane-Toowoomba section but were subsequently switched to passenger working with the changeover to diesel haulage of the main services between Brisbane and Cairns and Brisbane and Rockhampton. When more diesels are received it is proposed to examine existing schedules with the object of introducing fast freight services on some sections. Two of the ten diesel-electrics ordered from the English Electric Co. Ltd. were delivered during the period under review.

Two complete air-conditioned trains, totalling 24 vehicles, were received from Commonwealth Engineering (Qld.) Pty. Ltd. The first train, named the "Inlander," went into service between Townsville and Mount Isa and was followed by the second, the "Sunlander," on the Brisbane-Cairns route. By July, 1954, trains of this type will be operating on the four main trunk routes in the country. Those already in service have been enthusiastically received by the public. The 1,473 wagons put into traffic greatly helped to satisfy the increasing demand; they included 498 four-wheel steel open wagons built by the Gloucester Railway Carriage & Wagon Co. Ltd. and 360 of the same type from the Metropolitan-Cammell Carriage & Wagon Co. Ltd. When the year closed 4,337 wagons had still to be supplied under existing contracts.

The delivery during the year of four of the six four-car diesel trains being supplied by Commonwealth Engineering enabled country passenger services to be much improved. The rebuilding of Cairns Station satisfactorily progressed. Levelling of the site of and construction of main draining for the new Redbank workshops were begun. The whole scheme is estimated to cost between £4,500,000 and £5,000,000 and it is aimed to complete it as early as possible, in so far as the availability of funds will allow, so that the lag of locomotive repairs can be satisfactorily overtaken.

Because of a cut in loan funds it was not possible to proceed with electrification works in the Brisbane area; in the allocation of the finance available preference was given to the continuance of quadrupling in the area, essential even without electrification. Unfortunately, limited funds available during the current year have caused this work to be suspended also. It is nevertheless imperative that the quadrupling work be resumed as quickly as possible, to avoid delays to the working of goods trains.

Railways in 1854

OVERSEAS railway construction was an outstanding feature of 1854, as the great Victorian industry of financing, building, and equipping much of the world's railway system was getting into its stride. The year saw the opening of the first railways in Australia, Brazil, and Norway, and considerable expansion in Canada and India. Railways in Australia had been planned for some years, but construction was delayed by the discovery of gold, which enabled even unskilled labour to command very high wages in the goldfields. A horse-operated railway, built by the Government, was opened on May 18 between Goolwa and Port Elliot, in South Australia; and the first steam-operated line on the Australian continent was opened on September 13, between Melbourne Flinders Street and Sandridge (now Port Melbourne) in Victoria by the Melbourne & Hobson's Bay Railway Company. In India, the East Indian Railway began its operating life on August 15 with the opening of the 23-mile section between Calcutta Howrah and Hooghly, which was extended a further 14 miles to Pundooah on September 1. This undertaking was often called the Bengal Railway in the contemporary press.

Probably no country in the world is more greatly indebted to railways than Canada, both in securing the unification of her scattered provinces and in fostering a national spirit. Railways thus proved of great constitutional significance, as the Canadian transcontinental railways developed east-to-west lines of commerce, which otherwise would have been from north to south, and would have provided closer links between Canadian cities and the U.S.A. than with other parts of the Dominion. Among many developments of 1854, were the laying of the first stone of Robert Stephenson's 25-span Victoria Tubular Bridge over the St. Lawrence River on June 22: the 10,000 tons of ironwork for this were fabricated in Great Britain, and despatched duly marked for assembly. The opening of the Carillon & Grenville Railway, was a link completing a through rail and water route between Montreal and Ottawa. Incidentally, this was the last line in Canada to retain the 5-ft. 6-in. gauge, which it did until 1912, when the Canadian Northern System acquired control. The travelling post office, for sorting letters en route, was introduced in Canada by the Great Western Railway, which occupied an influential position in early Canadian transport.

In Brazil, the Dom Pedro II Railway (afterwards the Leopoldina Railway) inaugurated its service on April 30, and Norway had its first experience of railway travel on September 1, when the 42-mile line between Oslo (then Christiana) and Eidsvoll was opened. This was a private enterprise in which the National Government and municipalities participated; it was incorporated in the Norwegian State Railway system on March 4, 1926. It now forms part of the Oslo-Trondheim line. The year 1854 also saw the beginning of railways through the Alps, with the completion of the Semmering Railway in Austria, later part of the Austrian Südbahn, on which the first goods train ran on May 15, and regular passenger traffic began on July 17.

At home, the new Paddington Station was brought into use, the departure side on January 16, and the arrival side on May 29. Two great names in British railway history had their birth during the year—the North Eastern Railway, formed by amalgamation on July 31; and the Metropolitan

Railway, a re-incorporation of the North Metropolitan scheme of the previous year, on August 7, which had substantial G.W.R. support.

Openings of new British lines, some of which are recorded in our Scrap Heap columns, totalled about 330 miles of more than local importance, with some 40 miles of short extensions. Outstanding in England was the inauguration of the first section of the London, Tilbury & Southend Railway on April 13; the extension of the L.S.W.R. from Basingstoke to Andover on July 3; and the opening of the North Devon Railway from Crediton to Barnstaple on August 1.

In Scotland, there was the beginning of the Great North, from Aberdeen to Huntly, on September 20, 39½ miles of single line, which was the first railway to be equipped throughout with the electric telegraph from its opening. It also had the distinction of making no provision for second class, and the resultant economy in rolling stock is said to have inspired Edward Shipley Ellis, the Chairman of the Midland Railway, to take the momentous step in 1875 which led to the abolition of the second class. Irish openings dropped in total, after the efforts to complete lines in time for the International Industrial Exhibition of the previous year, and only 65 miles were added, but these included railways from Dublin to Bray by two routes on July 10, and the completion of the railway from Londonderry to Enniskillen on August 19.

The first use of the railway as an arm of military operations between first class powers was in the Crimean War, and originated a hundred years ago. On March 27, Great Britain and France declared war on Russia, and, as early as May, *The Times* correspondent stressed the inadequacy of our transport arrangements. In August, Colonel Anthony Sterling of the Highland Brigade wrote " Nothing so helpless as an army without transport, and our Government has either been grossly deceived or been very neglectful of this important matter." On September 14, the Allied armies landed in the Crimea, and on October 17 the siege of Sebastopol began. Samuel Morton Peto suggested a railway line as a supply line for the troops, and the formal proposal of his famous firm of railway contractors, Peto, Brassey & Betts, put forward on November 30, was agreed by the Cabinet on December 1. This was for civilian navvies to build a railway from Balaklava. The contractors lost no time in issuing advertisements, and on December 2 and 4 their offices were besieged by engineering tradesmen.

The Future of First Class Travel

(*By a correspondent*)

MRS. TERRY MORRIS, an American authoress with a lively journalistic style, recently travelled 4,000 miles over some of the principal U.S.A. railways to find out how people can get most comfort and pleasure out of their rail trips at least expense. In a slim brochure entitled "Tomorrow's New Trains are Here" she tries to show how anyone can travel like a millionaire on a low budget. She points out that many coach trains have been converted into rolling resort hotels. They have duplex cars with glass-dome penthouses, coaches with foam-rubber lounge chairs, lavish club cars, facilities for long-distance phone calls, and the services of trained nurses, secretaries, valets and barbers. Mrs. Morris writes enthusiastically about four trips she made in dome cars, beginning with a run alongside the Mississippi in the "Olympian Hiawatha's Super Dome," whose glass roof extends the 85-foot length of the car. She was thrilled also when a radio-telephone connection from the "20th Century Limited," running at 80 miles an hour between New York and Chicago, let her chat "$1·69 worth" with her husband at home. But the luxury of the Santa Fe "Super Chief" capped all; she enjoyed breakfast in bed, rounded off by a dish of strawberries and cream, and accompanied by music. All rooms on the "Super Chief" have separate radio reception and the Santa Fe provides stock market bulletins and the latest news reports, besides looking after mail and telegrams.

Mrs. Morris did not trouble her head about train speeds or locomotive performance. She simply remarks that diesels ensure the passenger a smoother and faster run. She was interested in "The Little Nugget," the club car on the Union Pacific "City of Los Angeles," and in the Baltimore & Ohio plan for sightseeing at night by mounting four floodlights in the front of the dome car on the "Capitol Limited," that runs between Washington D.C. and Chicago. At the end of the tour she was convinced that "on all lines, passengers are being served as never before."

The response of the American people to this plethora of service has been so far astonishingly poor. In the U.S.A., travel in railway coaches corresponds to our third class traffic, while journeys in parlour and sleeping cars (Pullmans) are equivalent to our first class business. Both classes of travel have declined rapidly since 1948. In that year coach passengers numbered 283,189,500 and in 1952 only 186,252,000, a decrease of 96,938,000 or 34 per cent. First class travel declined at half that rate from 27,546,250 to 22,767,240; of the 4,779,010 lost passengers, no less than 2,162,400 were missing in 1952 when carryings were 8·6 per cent below 1951. Over the five years, revenue from coach passengers was down 10 per cent and takings from first class passengers were 4 per cent lower, though many fares were on a higher basis in 1952. During that period passenger train services were withdrawn from 26,800 miles of line; in 1952 about 132,900 miles of road were operated in passenger service and 224,700 in freight service.

The downward trend in passenger business was still steep in 1953. For the nine months to September, passenger revenue was 7 per cent below 1952, while freight revenue was 5·8 per cent higher. Of the railways mentioned above, the New York Central lost 5·8 per cent of its passenger revenue, the Santa Fe 12·8 per cent, the Union Pacific 7·8 per cent and the Baltimore & Ohio 10·2 per cent. All four lines increased freight revenue at more than the general rate for all Class 1 railways, the New York Central 9·5 per cent. The Pennsylvania, which is the largest carrier of both passengers and freight, showed a decrease of 9·6 per cent in passenger revenue, but added 8·8 per cent to freight revenue. The annual deficit on passenger travel is likely to be heavier than ever in 1953; the surplus from freight movement will bear much of the cost of amenities supplied without stint on "tomorrow's new trains."

The next question is whether British Railways have not been too liberal in furnishing first class space for a diminishing traffic. When restaurant car seats are disregarded, in 1948 the railways had 240,000 first class seats, and sleeping car berths, which were occupied by 29,290,000 passengers. In 1952 they had 246,390 seats and berths for the use of 21,492,000 passengers. Accommodation was increased by 2·5 per cent for the convenience of 26 per cent fewer people. The corresponding takings declined in the same proportion from £15,597,000 to £11,443,000, decrease of £4,154,000. The downward trends continued in the first nine months of 1953, when 1,220,000 fewer passengers took first class tickets, a decrease of 7·7 per cent, and £175,000 less revenue was collected, a decrease of 2 per cent. There is no end in sight to the gradual withering away of the higher class of travel.

Things were different before the war. In 1937 the former railway companies contrived to carry 48,353,700 first class passengers with an equipment of some 311,130 seats and berths. For each seat or berth they had about 155 occupants, compared with the 87 mustered by British Railways in 1952. Since nationalisation the aim has been apparently to revive first class travel by offering ample facilities, but a fresh policy is needed to suit present-day conditions. Little can be learned from the experience of the U.S.A. railways, whose passenger services have become to a large extent an advertising medium to attract freight traffic from competitive routes. British Railways will have to do their own thinking on a problem which cannot be shirked for long.

ROAD ACCIDENTS IN OCTOBER AND NOVEMBER.—Casualties on the roads of Great Britain during November totalled 18,048, compared with 16,161 in November 1952, an increase of 12 per cent. The total includes 447 killed (compared with 407); 4,780 seriously injured (4,149); and 12,821 slightly injured (11,605).

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

British Railways Timetables

December 17

SIR,— Nearly six years after nationalisation, British Railways timetables, with the notable exception of the Scottish Region, remain much in the same form as in the days of the four main-line companies. They first appeared in a fresh cover, the word "Region" being substituted for "Railway," then, after re-definition of the Regions, such vague generalities as "Eastern Counties" including the Great Central line to Marylebone, "Midlands" and so on appeared.

I realise that the authorities may be holding up rearrangement of timetables until they have decided on any re-routing of trains which would cut across the old "railway" areas—the Scottish Region has done something in this direction—but it seems to me that what we want urgently is: (*a*) a timetable for the main routes in the whole of Great Britain; and (*b*) local timetables for, say, eight or ten parts of the country, without regard to the railway Regions. Each should cost the same price and be in the same handy form as the present issues. The local timetable here in Sheffield is useless, as it only contains "Midland" trains.

Yours faithfully,
H. C. HOSKIN

123, West Street, Sheffield

Branch Line Closing

December 15

SIR,—The apparently endless series of branch line closings in this country is bad propaganda with the public and is having a bad effect on the morale of railwaymen. Are these two points being given the consideration they warrant? The apparently defeatist attitude of the British Transport Commission should be replaced by a more militant approach. What a tonic for railway staff and what a good advertisement if it were announced that a branch previously closed was now to re-open with a greatly improved service, or that a new station was to be opened!

The argument that lines do not pay their way is based generally on statistics; these, however, should not be given more than their proper weight, as there are other factors which cannot be dealt with statistically.

In many cases the branches are closed for passenger traffic only, and remain open for goods traffic; sometimes the track must still be maintained up to the level necessary for passenger trains, for emergency passenger working when required, as on the Clapham-Low Gill branch, which is shortly to cease having a passenger service. As in these cases the standing charges, such as permanent way maintenance, staffing of stations for goods purposes, and signalling, will continue anyway, it must be assumed that the revenue received from passengers, parcels, and so on, does not cover the cost of running a passenger train.

Many branch trains consisting of a locomotive and two or three coaches, with a crew of three, run with insufficient passengers to fill even one coach. Therefore smaller units are required. We are told that the high first cost militates against the use of a diesel unit on such branches, though further attention might be paid to this possibility, especially as with such a unit the crew can be reduced to two.

Something like a bus on rail wheels is required. It would be interesting to know the results of railbus operation in Germany. The chassis of such vehicles already is mass-produced and can be adapted easily to railway operation. Running costs therefore approximate to those of a road bus. It can be operated by one man, and give a regular interval service. Arguments against it are: (*a*) that it cannot haul vans and (*b*) that it cannot be strengthened at peak traffic periods. Probably light trailers could be built for railbus haulage; and a railbus service is better than no passenger service at all; the latter argument applies also to any objections by the unions to one-man operation.

To increase branch line revenue, there should be: (*a*) better main-line connections, which still leave much to be desired; (*b*) better signposting to stations in small towns and villages—the Southern Electric is ahead here; (*c*) more co-operation with bus companies, with better bus connections at railway stations; and (*d*) more excursion fares—not to exceed the return bus fare, coupled with a regular interval train service.

Branches act as feeders to the main lines; branch line passengers, if forced to use a bus because the train service has ceased, may well decide to travel by road throughout.

There is a completely different possibility in the case of the Isle of Wight railways: why does not the British Transport Commission hand this system over to private enterprise?

Yours faithfully,
J. R. P. MARTIN

8, Lowther Avenue, Morecambe

[Each line is considered on its merits and powers to close sought only as a last resort. All the proposals made by our correspondent have been considered at various times. Railway excursion fares seldom exceed and often are less than the return bus fare.—ED., *R.G.*]

Motive Power and Train Weight

December 18

SIR,—Reference the report on page 667 of your December 11 issue of the very fast running of a train in the London Midland Region on November 20: there is nothing remarkable in this train of 200 tons being hauled by a large Pacific locomotive from Carlisle to Shap, 31·3 miles in 33 minutes.

To ascend the Shap gradient at about 58 m.p.h. would require about 2,800 h.p., and practically half of this would be needed for moving the locomotive and its tender. What this run does emphasise is the necessity of having plenty of power available per ton of train weight. For instance, if the L.M. Region had electric locomotives weighing about 80 tons, capable of putting out 4,000 h.p. on the wheels at speeds up to 80 m.p.h., then running trains from Carlisle to Shap of 500 tons weight in 30 minutes would be commonplace; and even with much higher schedules between Carlisle and London no difficulty would be experienced in making up reasonable lost time.

Yours faithfully,
H. CHARNLEY

Brook House, Clayton-le-Woods, near Chorley, Lancs

"Stop and Proceed"

December 18

SIR,—I heartily endorse the view expressed by Mr. Ransome-Wallis in your December 18 issue as to the need for concise warning to be given to the driver of a train running under the "stop and proceed" rule.

Some twelve or more years ago, I introduced on the Nigerian Railway the caution order, which was printed and issued in booklets to each station for the purpose of warning drivers of trains: (*a*) when an inspection pump trolley is "on line"; (*b*) when a special speed restriction is in force which has not been notified in the regular manner and for which the special warning boards have not been erected; (*c*) for use when a train is authorised to proceed under the "section clear but station or junction blocked" rule; and (*d*) for any other special warning to drivers that may be necessary.

The orders are in duplicate for use with carbon paper and are prepared by the stationmaster (in Nigeria signalmen as yet only pull levers and act under the direction of the stationmaster who operates the electric train staff instruments) and the book is handed to the driver who signs and tears out the top copy which he retains and eventually hands in at his shed with his "ticket", whilst the carbon copy remains in the station book and is available for future reference, should that be necessary.

A great advantage is that the driver has with him written details of the warning and could refresh his memory when required, whilst the station staff can prove conclusively that a driver has been given a proper and detailed warning. I can assure you that this form has proved over the years to be of considerable benefit not only to railway staff and the administration but also to train working generally.

In a country like Nigeria it is, of course, very necessary to have means whereby contradictions can be verified, whereas in this country more reliance can be placed on the statements of staff; nevertheless in the circumstances referred to, i.e., working under the "stop and proceed" rule, I would strongly commend a form of written order.

Yours faithfully,

D. C. WOODWARD

Oakleas, Hillcrest Road, Hythe, Kent

Rolling Stock Weight and Cost

December 18

SIR,—There does not seem much point in comparing the selling price per seat of a railroad passenger car in North America for use in North America with the manufacturer's selling price per seat of a car built in Europe for use in Europe, as is done by your correspondent in your December 11 issue.

Cars built in North America have to comply with certain structural or "performance" standards approved by the Association of American Railroads. That being so, any comparison of weight per car in the two continents is also useless.

Some railroads even prefer cars which exceed the specifications for strength laid down by the A.A.R. That is their privilege. Many people prefer to eat, if they can get it, a Blue Goose Indian River grapefruit rather than one tasting like a dose of iron tonic. You mostly get what you pay for; and certainly that is true of passenger accommodation on North American railroads. If you don't pay for superior accommodation you certainly are not allowed to occupy it.

No account is taken of much higher wages in U.S.A. and the high cost of certain materials and equipment, which makes nonsense of the article.

To travel on a Budd-built Atlantic Coast Line train to Florida is an eye-opening experience. The customer likes these trains. He may even prefer, as we have said, Florida grapefruit. He is the customer, and in North America, the customer, in freight and in passenger service, is the all-important factor. That, too, has a bearing on the cost of passenger equipment.

Yours faithfully,

JOHN BARCLAY

c/o BM/HLMX, London, W.C.1

[Both in Britain and in Switzerland passenger stock must comply with statutory requirements, and passengers' wishes are taken into account in designing stock, having regard to the yield from fares.—ED., *R.G.*]

Publications Received

The Mechanics of Engineering Soils.—By P. Leonard Capper and W. Fisher Cassie. Second Edition. London: E. & F. N. Spon, Ltd., 22, Henrietta Street, W.C.2. 9 in. × 5½ in. 315 pp. Price 25s.—Since the publication of the first edition about four years ago, the subject of a notice in our issue of September 2, 1949, the study of soil mechanics has advanced considerably, necessitating additions to and the rewriting of parts of this work. These portions deal with the shear strength of soil and its resistance to shear, certain aspects of the stability of foundations and of wheel loading of roads and runways, and the study of seepage by "flow nets" or the pictorial representation of the paths taken by water passing through pervious material. The relation between soil suction and the percentage moisture content is a new channel of investigation now included.

The Locomotives of the Great Western Railway. Part Eight: Modern Passenger Classes. Published by the Railway Correspondence & Travel Society and obtainable from the Honorary Publications Officer, D. H. Wakely, 18, Holland Avenue, Cheam, Surrey. 8 in. × 6 in. 40 pp. + 24 pp. plates. Paper covers. Price 7s. 6d.—The fourth part to be published of this extensive history, the Preliminary Survey of which was reviewed in our August 17, 1951, issue, covers all the G.W.R. 4-4-2 locomotives, the only 4-6-2, *The Great Bear*, and all the 4-6-0s except two. A separate chapter is devoted to each class giving all the leading particulars, including dimensions, building and withdrawal dates, boiler alterations, and names.

L'Electrification des Chemins de fer (Railway Electrification). Supplement to the magazine *Electricité*, dated June, 1953. Paris: Editions Science et Industrie, 6 Avenue Pierre-Ier-de-Serbie. 12¾ in. × 9¾ in. 190 pp. Illustrated. Price fr. 1,250 (France and French Union) or fr. 1,350 (abroad), post free.—The articles in this review of French practice (21 on electric and one on diesel traction) are all contributed by officers of the French National Railways or members of electrical firms supplying their equipment. In general, they take the Paris-Lyons scheme, the Annecy 50-cycle experiments, and the Valenciennes-Thionville project to provide examples of motive power, fixed equipment, and operating technique, but a preface by Monsieur Louis Armand, General Manager, and an introductory chapter by Monsieur René Dugas, Directeur des Etudes Generales, discuss the claims of different forms of motive power from a wider standpoint. Both agree in the conclusion that future motive power on main routes in France should be electric, with the diesel performing auxiliary services such as shunting, operation of feeder lines, and traction on industrial branches over which it would not be economic to extend electrification. It is of interest that Monsieur Armand chooses the Paris-Strasbourg line when giving an example of how a main artery with similar traffic to that between Paris and Lyons could be equipped for electric traction at 50 cycles. In a publication of this type it it is unavoidable that some of the information should have appeared elsewhere in other forms. Its assembly between two covers is in itself a task for which students of electric traction developments in France will feel grateful.

Wiggin Nickel Alloy: No. 23.—The subjects included in this issue relate to various types of industrial heating elements, ultra violet and infra-red ray radiation, cathode ray tube seals, and temperature control. Details are also given of the uses of Nimoply 75, an improved sheet material for high-temperature uses, including combustion chamber linings for gas turbines, the chief requirements of which are to resist distortion and cracking through stresses arising from thermal expansion, and high resistance to scaling.

Ruston-Paxman 1954 *Calendar.*—The calendar for 1954 of Ruston & Hornsby Limited and Davey Paxman & Co. Ltd. contains six handsome reproductions in colour of paintings by Mr. Jack Merriott of scenes in countries where the products of these firms are playing an important part in industrial and general economic development. The paintings depict a tree-lined canal in Bruges, Belgium; a harbour in Cyprus; an African village in Rhodesia; a mountain vista in Argentina; the gorge at Ronda in Spain; and pagodas in Burma.

XUM

THE SCRAP HEAP

Some British Railway Centenaries of 1954

Below is a list of some British railway centenaries which occur during 1954:—

January 2, Carmarthen to Haverfordwest opened (31 miles). South Wales Railway.

January 2, Hereford (Barton) to Pontypool (Coedygric junction) opened (33¼ miles). Newport, Abergavenny & Hereford Railway.

January 16, Paddington New Station, departure side opened (20 chains). Great Western Railway. Arrival side opened May 29.

February 25, Middlesbrough to Guisbrough opened (9½ miles). (Goods from November 11, 1853.) Middlesbrough & Guisbrough Railway.

April 1, Newmarket to Bury St. Edmunds opened (14 miles). Eastern Counties Railway.

April 13, Forest Gate to Tilbury opened (17 miles). The first section of the London, Tilbury & Southend Railway.

June 1, Pontypool to Blaenavon opened (6 miles). Monmouthshire Railway.

June 1, Malton to Driffield opened (20 miles). North Eastern Railway.

June 7, Lindal to Ulverston opened (2¼ miles). Furness Railway.

June 10, Sydenham to Crystal Palace opened (1¼ miles). (Goods from formal opening on March 27.) London, Brighton & South Coast Railway.

June 22, Carlisle (Canal Junction) to Port Carlisle opened (11 miles). Port Carlisle Railway.

June 24, Hull to Withernsea opened (18¾ miles). Hull & Holderness Railway.

July 1, Tipton to Priestfield and Wolverhampton (Cannock Road) opened (5¼ miles). Oxford, Worcester & Wolverhampton Railway.

July 3, Basingstoke to Andover opened (15 miles). London & South Western Railway.

July 24, Bullo Pill to Churchway opened (8 miles). South Wales Railway.

August 1, Maidenhead to High Wycombe opened (10 miles). Great Western (Wycombe Railway).

August 1, Crediton to Barnstaple opened (32½ miles). North Devon Railway.

August 2, Ferryhill to Aberdeen opened (¾ mile). Aberdeen Railway.

August 15, Manningtree to Harwich opened (11 miles). Eastern Union Railway.

August 28, Somerset Central Line. Highbridge Wharf to Glastonbury opened (12½ miles). Bristol & Exeter Railway.

September 20, Aberdeen to Huntly opened (39½ miles). (Goods from September 12.) The first section of the Great North of Scotland Railway.

November 14, Birmingham to Priestfield Junction opened (11 miles). Great Western Railway.

November 14, Frome to Radstock opened (8 miles). Great Western Railway.

December 4, Haddiscoe to Beccles and Halesworth opened (14 miles). Eastern Counties (East Suffolk) Railway.

Oh! Mr. Porter

Station porter Bernard Betts went for a trip from Leeds to London in his shirt-sleeves. And he went against his will. Betts was putting luggage in the 4.35 p.m. "Queen of Scots" for a late passenger when the train started to glide out of the station. . . . Notes were thrown out of the train explaining to the stationmaster at Leeds Central why Betts was not on duty and explaining to Betts's mother why he had gone to London . . . Then back on the 10.47 p.m. which got him home at 3.30 the next morning.—*From the "Daily Express."*

Dangerous Single Line

Large bodies of men are now conconstantly at work on various parts of this [South Devon] line in making alterations and improvements which have been found positively necessary. Between Dawlish and Teignmouth, where the landslips occurred last winter, the cliffs are being sloped; and those parts which are considered dangerous altogether removed. From Exeter to Newton the line is single, but below that place numerous gangs of men are at present busy in laying down a double line of rails as far as Totness [sic]. In many parts this work is completed, and there will thus be the less chance of collisions (of which there was a great danger), there being a very deep incline at this part of the line.—*From "The Times" of December 9, 1853.*

[The South Devon Railway had been opened from Exeter to Newton Abbot in 1846. "Atmospheric" traction was inaugurated from Exeter to Teignmouth in September, 1847, and to Newton in January, 1848; the system was abandoned in September, 1848.—Ed., *R.G.*]

New Year's Eve

The failing year sinks slowly to its close,
With its attendant mourners, faint and few,
Its young supplanter on the threshold waits,
Vibrant, bright-visaged, promising anew
The consummation of mankind's desires,
Pursued incessantly throughout the years,
A spark of hope revives the fading fires
Of feeble faith, half-quenched by human tears.
But, lest this old, familiar parable
Engender overmuch solemnity,
Remember, life still has its "traveller's joy,"
Perennially displayed for all to see.
Happy the man, who, looking in the face
Of good or ill, knows them for what they are
And, bravely forging his own way ahead,
Selects and stoutly follows his own star.
This proud confederation of the rail
Will meet with many a check this coming year;
"Paths" will not always work out just as planned,
The signals will not all be set at "clear,"
Yet, facing up to Old Man Destiny
And keeping that old bluffer in his place,
With sleeves rolled up we'll do our level best
To make young '54 a year of grace.

A. B.

The Last "Saint"

Photo] [John Alves

Western Region locomotive No. 2920 "Saint David," the last survivor of the "Saint" class, at Hereford, shortly before being withdrawn

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

WESTERN AUSTRALIA

Financial Results, 1952-53

The effects of the metal trades strike which began on February 21 and continued until August 18, 1952, are clearly indicated in the financial results for the 1952-53 financial year. This strike, of members of the Amalgamated Engineering Union and the Boilermakers' Society interfered so drastically with the maintenance and repair of locomotives that at the conclusion of the strike only 56 engines were in serviceable condition instead of 354 when the strike began. As a result, traffic which would normally have been carried by rail was handled by emergency road hauliers. It was not until well into the year that services returned to normal.

Earnings totalled £7,972,260, a decline of £1,191,272, and operating expenses reached £12,087,333, an increase of £1,421,772. The result was an excess of expenditure over earnings of £4,115,073, and when interest, depreciation and other items are added, a deficit of £5,882,756 is recorded.

The capital investment at June 30, 1953, was £29,550,285, an increase of £6,049,162. New locomotives and rolling stock purchased from outside contractors are among the principal contributions to this increase, but new workshops machinery and equipment, and permanent way renewals, including re-sleepering, which under the existing system of accounting are now chargeable to capital, are important factors.

Train miles run totalled 5,255,184, a drop of 1,546,438. Passenger journeys were 6,975,601, or 4,146,177 fewer. Passenger business was that first affected by the strike, the entire suburban service being cancelled, and country services drastically reduced. Goods tonnage carried was 2,618,806 (3,062,641); the total ton-mileage of paying goods and livestock 409,590,736 (469,747,561); average haul 156·40 miles (153·38); total earnings £5,863,543 (£6,967,270); and earnings per ton mile 3·44d. (3·56d.).

SOUTH AFRICA

Bulawayo Service Accelerated

The new timetable which came into force on November 30 and covers a full year shows accelerations of two hours between Cape Town and Bulawayo, and Johannesburg and Bulawayo; the saving in time has been achieved between Mafeking and Bulawayo over the section which is owned by Rhodesia Railways but operated by the S.A.R.

EAST AFRICA

Estimates for 1954

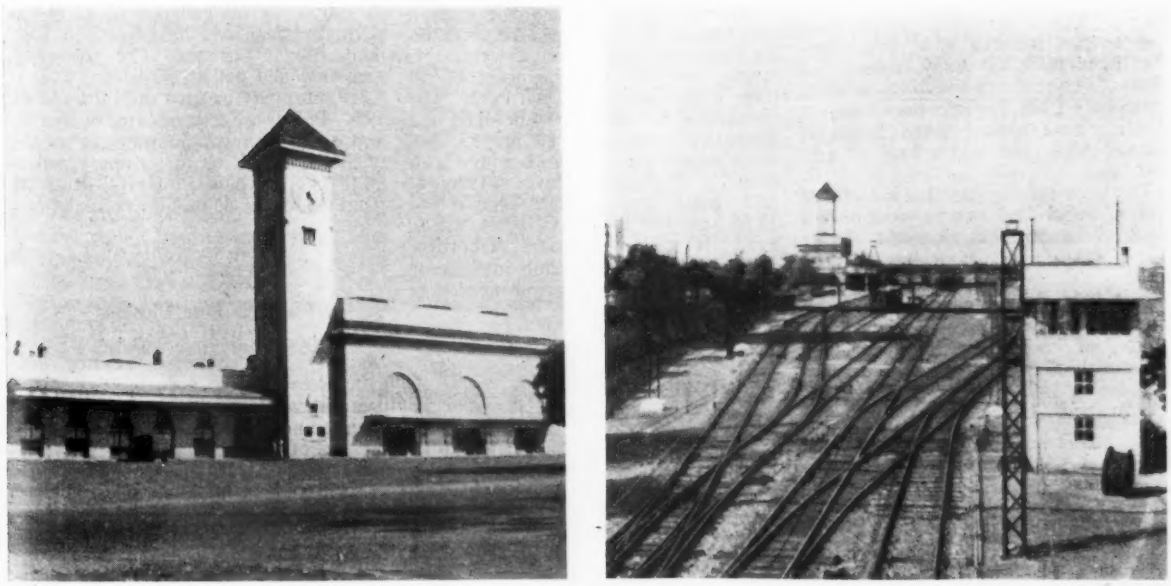
The Transport Advisory Council and its Railways and Harbours Committees has recommended that the East African Railways and Harbours Management's estimates of revenue and expenditure, with the programme of capital renewals and betterment work for 1954, go forward to the Central Legislative Assembly for approval this month. The estimates for 1954 anticipate a total railway and harbours revenue of some £16,250,000 and the capital and renewals programme provides for an expenditure of nearly £28,000,000.

An important work proposed by the Management and recommended by the Council was a railway between the existing port area on Mombasa Island and Changamwe on the mainland by a causeway to be constructed over the Macupa Creek. This is a preliminary to the planned extension of Mombasa Port and is also an essential to the working of the two new deep water berths now under construction.

Revenue and Tonnages

The approximate railway revenue up to the end of October, 1953, was £10,330,135 compared with £10,460,650 for the corresponding period in 1952, a decrease of some £13,500. These figures show some improvement on the results to the end of September. Revenue for the month of October was approximately £17,000 greater than for the same month of 1952. In October, faced with a bumper crop in Uganda the railway was called on to move specially heavy tonnages of maize both internally in

Moroccan Railway Electrification



Photos] *[A. Earle Edwards*

Exterior (left) and general view (right) of 3,000-V. d.c. electrified tracks at Casablanca Town Station, Moroccan Railways, where passenger traffic has much increased since the war ; passenger trains are worked by Bo–Bo locomotives

Uganda and to Kenya and Tanganyika. As maize is carried at a low rate, revenue has not increased proportionately, though heavy tonnages have been moved. At the same time heavy imports through Kilindini have been handled, the total tonnage conveyed by rail from Mombasa Island in October being almost 18 per cent and public tonnage 20 per cent greater than that in October, 1952. The actual tonnage hauled by rail up-country in October, 1953, was 110,713 tons, compared with 94,093 tons in 1952. Tonnages to the coast over the Kenya-Uganda Section were some 2,000 tons higher than in the month of September but 11,000 tons less than in the same month last year.

On the Tanganyika Central Line revenue from goods traffic increased by approximately £4,500 compared with the earnings for October, 1952, and were almost £6,000 greater than for the month of September, 1953. Earnings from livestock traffic were particularly high because of intensive movements to Dar es Salaam of cattle from drought-stricken areas.

ARGENTINA

Talgo Trains a Possibility

Señor Goicoechea, inventor of the lightweight Talgo trains in service in Spain, is in Buenos Aires at the invitation of the National Transport Undertaking with a view to examining the possibility of building such trains in Argentina.

New Diesel Services

The General Mitre Railway has placed into service a new Ganz-diesel express between Buenos Aires and Rosario, covering the 303 km. in 3 hr. 40 min. at an overall speed of 83 km.p.h. This is the fastest regular train ever to run between these two cities. For the present the train, named "La Flecha," will run on five days a week. Passengers from Rosario may leave at 7 a.m., have almost seven hours in Buenos Aires, and arrive back at 8.55 p.m.

The same railway has also introduced a Ganz-diesel day train running once a week between Rosario and Bahia Blanca (General Roca Railway). The running time between these two points has thereby been reduced by seven hours. A similar saving has been effected on the Buenos Aires—Bariloche route of the General Roca Railway with the placing into service of a new express named "Lagos del Sur."

BRAZIL

Re-equipment of Mogiana Railway

President Vargas has approved the Brazil-United States Commission's project to re-equip the Mogiana Railway, which serves north-west Sao Paulo State, the Minas Geraes triangle and a small part of southern Minas Geraes. Through its connections with the Sorocabana, Paulista, Sao Paulo-Minas, Rêde Mineira and Goias railways it serves, directly or indirectly, several million inhabitants in an area of intense economic development.

The project calls for a foreign loan of U.S. $8,394,000 and local expenditure of 514,740,000 cruzeiros (£10,294,800). It includes the purchase of 420 km. of 37 kg. per metre rails; replacement of 2,090 km. of sleepers, the number per km. to be increased to 1,800 over 313 km., and to 1,700 over 531 km., with reinforced ballasting throughout; purchase of equipment for quarries and maintenance; extension of shunting lines and shortening of the track between Lagoa Branca and Tambau; purchase of 1,076 wagons with automatic couplings and air brakes and an unspecified number of locomotives. Part of the expenditure in cruzeiros will be defrayed by funds of the Salte Plan.

Rio Grande do Sul Loan

The contract between the National Bank for Economic Development and the Sul Riograndense Government, for financing re-equipment of the Viaçao Ferrea do Rio Grande do Sul was signed in December. The bank has opened a fixed credit of 743,650,880 cruzeiros (£14,873,018) for the State Government, to be drawn on in five instalments, spread over four years. The loan will bear interest at 7 per cent per annum and must be redeemed within 20 years, by six-monthly payments, commencing in June, 1959. The account may only be drawn on until December, 1958.

ITALY

New Milan-Reggio Calabria Fast Train

A new high-speed train was put on between Milan and Reggio Calabria (on the Straits of Messina) on December 1. It may be used by passengers of all three classes paying normal fares. The distance of 820 miles (via Bologna and Rome), is covered in 18 hr. 55 min. southbound, and 19 hr. 31 min. northbound. The train leaves Milan at 2.25 p.m., and reaches Naples at 12.58 a.m. and Reggio Calabria at 9.20 a.m. It calls at Rome Tiburtina, thereby avoiding the climb into Rome Termini and saving the time needed to reverse there.

FRANCE

Tourist Traffic

It is estimated that, of the total S.N.C.F. passenger receipts of some fr. 102,000 million (£104 million) in 1952, fr. 8,450 million (£86 million), or 8·2 per cent, came from overseas visitors to France. For the years 1950, 1949, 1948 and 1947 the corresponding percentages were 8·4, 6·2, 4·2 and 3·8. The receipts per passenger-km. for tourists from overseas in 1952 were first class, fr. 7·88, second class, fr. 5·47 and third class, 3·89; the corresponding figures for all passenger traffic on the S.N.C.F. were fr. 6·64, fr. 4·61 and fr. 3·16.

Long-welded Rails

After experimenting with various lengths of welded rail the S.N.C.F. is now concentrating on the use of 800-m. (2,624 ft.) lengths. During 1952, 202 km. (125 miles) of track were renewed with rail of this length; the 1953 programme envisages the laying of a further 520 km. (323 miles). By October 1 last year it is estimated that, in all, 700 km. (435 miles) of long-welded track were in use.

Most of the welding is undertaken at workshops and the long lengths are carried on specially-equipped flat wagons to their ultimate location. The S.N.C.F. is also using the thermit-welding process for joining lengths of rail in situ; this method is particularly useful for track laid on concrete sleepers, where the rail is usually attached in advance to the sleepers.

FINLAND

Use of Pallets

Increased attention has been given to the organisation of parcels traffic. Pallets and pallet-boxes have been introduced to facilitate transhipment and conveyance at terminals. The State Railways now own about 8,000 pallets.

The introduction of the pallets and of the lifting gear necessitated changes in the structure of the warehouses. Warehouse platforms had to be widened and brought to the level of the wagon floors on one side and the floor of the lorries on the other side.

A reduction of 5 per cent on the cost of carriage is now granted on consignments of parcels loaded on pallets by the sender. The reduction is granted on condition that the pallets used are of the normal dimensions introduced in Finland, 100 × 120 cm. The previously recommended pallets, measuring 813 × 1,219 mm. may be used until the end of 1954. Pallets are returned free of charge, and on the outward journey the weight of the pallet (20 kg. for ordinary pallets and 50 kg. for pallets-boxes) is deducted from the total weight of the consignment.

IRELAND

Branch Line Closings

The branch lines between Cork and Macroom and between Fermoy and Mitchelstown have been closed. Macroom and Mitchelstown monthly cattle fairs are now served by the road freight services of C.I.E.

The Cork-Macroom line was opened in 1866 and up to the time of amalgamation with the G.S.R. in 1925 was profitable. It was closed to passenger traffic in 1935, but freight services continued until 1947. Part of the abandoned line will be flooded under the Lee hydro-electric scheme. Passenger services were withdrawn on the Mitchelstown line in 1947.

Mechanised Stores Accounting in the Sudan

Mechanical punched card system for railway and steamer stores

THE Sudan Railways Stores Department operates a main depot at Atbara and a steamer stores at Khartoum North. The Atbara Stores depot covers an area of almost 200,000 sq. yd., has over 100,000 sq. ft. of covered storage, and 3,000 sq. ft. of timber seasoning sheds.

Up to 1949-50 the system of stock control was entirely manual. All orders and receipts were entered on ledger control cards from the documents received from the stores depot, order office, and invoice office. On each receipt a new average price was struck for the item and statistics of monthly and average consumptions were abstracted.

In 1946, it was planned to replace the manual stores accounting system by a mechanical punched card system. The system decided upon was the 65 column type and the following machines were installed in 1949:

6 automatic card punches and verifiers
3 hand card punch machines
1 auto verifier
1 reproducer
1 multifield punch
1 interpolator
2 tabulators
2 sorters
2 multipliers

The introduction of machine accounting required a complete reorganisation of the stores procedure to adapt it to the new system.

Under the new system all documents, issue vouchers, receipt vouchers, orders, invoices, material "returned" forms, and workshop orders for stock are sent daily to the machine accounting section, where transaction cards are punched with the information contained in each document, fixed rates are inserted automatically and the value of the transaction punched in by the multipliers.

These transaction cards are then verified, sorted in catalogue order by classes and filed pending posting. All items are divided into classes and sub-classes. Posting of the ledger and control cards is phased over a week, a group of cards being posted each day. When a class is posted transaction cards for the class are removed from the files, issues, receipts, and opening balance cards are sorted or merged into the order and tabulated, the proof balance is taken and after checking the ledger cards on which there has been any movement since the last transaction, are posted.

Final Posting

In the final posting, ledger cards not only detail the issues, receipts, etc., but in addition show closing balance, the rate value, quantity "due in" (on order), the quantity "due out" (awaiting issue) and the net provision figure (stock plus "due in" minus "due out"). Concurrently with posting the closing stock balance, the tabulator cuts a new card which forms the opening balance card for the next phasing.

The multipliers are not only used for the purpose of extending the rate to obtain values, but also for stock control purposes. Each item of stock has a predetermined reordering level based on the delivery time factor, also a predetermined physical stock level, at which level special action must be taken to expedite supplies.

The stock figure of each item is multiplied by a reciprocal which results in the stock being shown in terms of months. If the resultant figure is below the predetermined ordering of stock level, the card is outsorted and posted, for action, on a special list.

Fixed Rates

A further feature of the present system is the introduction of fixed rates for each stock item. The rates are fixed for definite periods and are only changed when sharp increases or decreases are experienced in the buying price. In practice it has been found possible to maintain a fixed rate over a considerable period. The differences between the actual buying rate and the fixed rate is recorded with the variance for the item on a separate card.

The results are summarised by subclasses, classes, and in total. The introduction of fixed rates has enabled departments to budget more accurately, secure in the knowledge that the cost of materials will not fluctuate with each new receipt.

Progress of Rhodesian South-East Connection

Rapid construction of line to provide new outlet to the sea

IF there are no abnormal rains during the next two seasons all earthworks on the south-east connection, the new line being built from Bannockburn to the Mozambique border, 204 miles, which will form part of a through route from Bulawayo to Lourenço Marques, should be completed by the middle of 1955.

The new line will give Rhodesia its second direct outlet to the Indian Ocean through Portuguese territory, the present outlet being through Beira, whilst Lourenço Marques is connected by rail with the Transvaal via Komatipoort, where the South African Railways join the Mozambique Railways. The latter system's branch to Guija is being extended to the frontier to meet the Rhodesia Railways new line from Bannockburn.

At Bannockburn, where the line takes off from the Shabani branch, rails and sleepers for the first 41 miles were stacked ready by the beginning of September. Track laying was due to begin before the end of last year.

Bannockburn, until recently an insignificant place, is now a growing community, with a population almost exclusively of railwaymen. It has its own railway hospital, with resident medical officer and a trained staff.

By the end of September more than a third of the total earthworks on the line to the border had been finished, and 1,067,166 of an estimated total of 3,000,000 cu. yd. of earth had been moved. All the major work of this type is concentrated on the first 50 or 60 miles. On this section there are cuttings up to 40 ft. deep and embankments 40 ft. high, in a region of mountains, rivers, and little-known valleys, where game is abundant. Beyond, however, the country traversed becomes less interesting.

Culverts and smaller bridges have been completed to a point 78 miles from Bannockburn, and the piers and abutments of the largest bridge, over the Ngesi River, have been begun. This will be a major bridge, similar in design to that at Hunyadi, described in our April 4, 1952, issue, with four 95 ft. spans.

Most of the work is being carried out departmentally, only some 700,000 of the 3,000,000 cu. yd. of earthwork involved being carried out by contract.

RECORD TRADING YEAR FOR BRITISH ROAD SERVICES.—Major-General G. N. Russell, Chairman of the Board of Management, British Road Services, has pointed out in his Christmas message to the staff that 1953 was British Road Services' best trading year. On the one hand, economies reduced costs, and on the other hand better use of equipment resulted in higher earnings per vehicle. "In short," he adds. "the productivity of British Road Services has been considerably improved. Many congratulations to you all."

The Water Problem of the South African Railways

Difficulty of providing reliable and adequate supplies

THE South African Railways use about 20,000,000 gal. of water every day, for locomotives, in workshops, for passengers and many other purposes. Increasing traffic demands are constantly sending up consumption. Experience has shown that little reliance can be placed on borehole supplies for main-line trains and the tendency is to make more use of surface supplies necessitating costly conservation or pumping schemes. In some arid areas, notably between Touws River and De Aar and also through the Namib Desert and South West Africa, it has been found almost impossible to provide reliable water supplies, except at great cost.

In 1945 a water engineer was appointed to examine the question. Since then, considerable progress has been made and plans for the improvement of all water supplies have been put into operation; at some points new supplies have been established.

In the past, water supplies were reasonably adequate for watering trains, but steam pressures were much lower and the quality of the water was not as important as it is to-day. Water for locomotives was obtained chiefly from boreholes or reliable streams or wells nearby. Domestic water supplies for station staff and gangers also came from boreholes, but often drinking water had to be brought by train from the nearest "safe" water supply.

Not only have water requirements increased greatly, but the modern locomotive demands good water and purification is often necessary. A further difficulty today is that water at some points has dried up and supplies have often to be carried at a heavy cost from sources some miles from the railway.

Emphasis is placed on the improvement of all water supplies rather than haphazard development of individual supplies. Any supply can only be developed economically within the limits imposed by its natural resources. In practice this often means that when existing supplies are exhausted new supplies of greater capacity have to be found, usually far from the most convenient watering point. This often calls for a re-arrangement of watering points, usually a costly process.

Pumping and Treatment

Most of the water supplies have to be pumped and, or, chemically treated. The water bill of the railway is now about £1,000,000 a year. Locomotive requirements vary from a few thousand gallons a day at small depots to over 1,125,000 a day at the larger depots such as Germiston.

The largest gravity supply is at Touws River, Cape Province, where up to 600,000 gal. a day is piped from mountains eighteen miles away. Water is taken from the Orange River for railway purposes at no less than seven places and from the Vaal River ten supplies are drawn. The largest pumping plant, with a capacity of about 300,000 gal. a day is at Orange River. There are about 1,800 domestic water supplies on the South African Railways including the points to which drinking water is conveyed by train.

A great diversity of waters exists throughout the railway system, from the highly mineralised borehole supply in the Namib Desert to the heavily silt-laden water of the Orange River. Of the 700 locomotive water supplies, approximately 68 per cent are surface supplies and the remainder from boreholes and wells. At least 80, or nearly 12 per cent, of these supplies have to receive chemical treatment, chiefly softening by zeolite or lime-soda plants. The type and extent of the treatment is not decided primarily by the type and quality of the water so much as the suitability of the final water measured against the peculiarities of the other supplies in the area. Clarification plants are also used to remove turbidity and mud from water supplies. There are nine of these plants at present in operation and at least another thirty are contemplated. Automatic devices are avoided unless they are based on simple hydraulic principles.

Boreholes

Some 31·8 per cent, or approximately 573, of the domestic water supplies are maintained by the conveyance of water by train, a costly practice. Geological surveys along the railway throughout the Union, South West Africa, and Bechuanaland, are being carried out with a view to sinking boreholes for domestic water supplies on sections now supplied by train, although some places will always have to be supplied by train.

Increasing use is also being made of raw locomotive water supplies for domestic purposes after treatment. It often happens that a locomotive supply from a dam or river is available; a small clarification and filtration plant can then be constructed to purify the water for domestic use.

The introduction of condensing locomotives may help to solve the water problem. Normally, a locomotive has to take on water every forty or fifty miles but the condensing locomotive can operate for some 500 miles without replenishing its supply. The first of 90 such locomotives, of the 4-8-4 wheel arrangment are carrying out full-scale tests in South Africa; in this order the North British Locomotive Co. Ltd., and Henschel & Sohn, G.m.b.H. are participating.

RAIL-ROAD TOURS IN NORTH EAST.—The combined rail and road tours organised by the North Eastern Region of British Railways during the summer were well patronised. More than 1,000 passengers from the West Riding, Hull, Sheffield, Doncaster and Darlington travelled to York, where they were taken by bus to the North Yorkshire Moors, visiting Helmsley, Rievaulx Abbey, and Castle Howard, and nearly a thousand from Tyneside, Tees-side and York alighted from the train at Richmond, and then toured Swaledale by road. Sheffield was the focal point for many day visitors from York, Hull and the West Riding, who had the choice of a bus tour to Matlock and the Hope Valley, or to Buxton. Other well-booked tours ran from Newcastle and Tees-side to Ripon (for Fountains Abbey and Brimham Rocks); from Darlington, Tees-side and Sunderland to Newcastle (for Tynedale and the Roman Wall); from the West Riding, Sheffield and York to Scarborough for a bus tour along the coast to Robin Hood's Bay and Whitby; from the West Riding to Morecambe (for Lake Windermere); and from Sheffield, Huddersfield and Hull to Leeds (for Bolton Abbey and Knaresborough). It is planned in conjunction with the bus companies to extend the programme for next summer.

SILICONES IN MOTOR WINDINGS.—Midland Silicones Limited has issued an illustrated booklet which deals in a general way with the advantages gained by the introduction of silicone insulation. The risks of insulation breakdown in electrical equipment subjected to arduous service may, it is claimed, be practically eliminated in many cases by the use of silicone materials, and a description is given of their application in the repair of equipment. Silicone elastomers provide a new form of electrical insulation for use within the temperature range of 60-200° C. The material remains elastic and maintains its electrical strength at these temperatures, and is employed in the insulation of traction motors, where the insulation is subject to stresses as a result of vibration.

NEW ROOF AT CARLISLE CITADEL STATION.—The London Midland Region is to re-roof Carlisle Citadel Station and renew the electric lighting installation. The work, which is expected to begin next summer, will cost over £200,000. The present roof was constructed in 1878.

POYLE ESTATE HALT—The new halt which is being provided by British Railways, Western Region, for the convenience of workers on the Poyle Trading Estate, is to be opened on January 4. Situated between Colnbrook and the existing Poyle Halt on the West Drayton to Staines branch, it will be served by trains in the morning and late afternoon, at convenient times for workers travelling to and from the estate.

Railway Cartage Vehicles in Paris

Types used by the road transport subsidiary of the French National Railways

By C. R. Cazenave, Chief of Paris Road Haulage Services, French National Railways

Light parcels van, with petrol engine

ONE of the activities of S.C.E.T.A., the road transport subsidiary of the French National Railways, is the operation of cartage services in Paris and its suburbs, an area which contains a population of about 7,000,000.

S.C.E.T.A. has thus a wide field in which to experiment with types of road vehicles and to determine those which are most economical and best suited to different tasks such as collection and delivery of parcels, smalls and perishables, and inter-station services.

A light vehicle which has been found particularly suitable for the delivery of parcels is a petrol-engined van with a capacity of 16 cu. m.; it is 6·1 m. long overall, 2·25 m. wide and 2·95 m. high. The capacity is 2·5 *tonnes*. A hand brake acts on the back wheels only; the foot pedal hydraulically operates four wheel vacuum-brakes.

The engine has four cylinders, developing 46 h.p. at 2,800 r.p.m. The vehicle has a sliding communicating door between cab and body. A folding door on the right-hand side facilitates deliveries and there are a hinged tailboard and a roller shutter at the rear. A rack on the roof carries bulky parcels.

S.C.E.T.A. has abandoned the use of electric vehicles in view of the high cost in France of such vehicles, as well as of traction batteries, and electric current.

Mechanical Horses

The mechanical horses previously operated by S.C.E.T.A. were similar to the 6-ton Scarabs of British Railways, but it was found that the petrol engine fitted was not powerful enough for the work it had to perform. After trial, the Hispano Hercules diesel engine was chosen. In spite of its use on cartage services with low mileage, the results of using a diesel engine have been excellent. Its purchase price is high, but the running cost is much less because of its robustness, low consumption (40 per cent less than petrol) and of the reduced price of diesel oil (47 francs a litre, compared with 64 for petrol).

The particulars of the new three-wheel FAR CM 70 type mechanical horse are:—

Length (overall)	4·575 m.
Width	2·110 m.
Height	2 m.
Total turning angle	150 deg.
Weight, unladen	2·65 *tonnes*
Maximum weight of tractor and semi-trailer	13·150 *tonnes*

The tractor is fitted with Scammell automatic coupling which can be used with all types of semi-trailers from five to eight *tonnes* of load capacity. The rear wheels of the tractor are braked either mechanically by hand lever or hydraulically by foot pedal. The semi-trailer is braked by Westinghouse compressed air servobrake. The four-cyl., four-stroke engine develops 57 h.p. at 1,800 r.p.m.

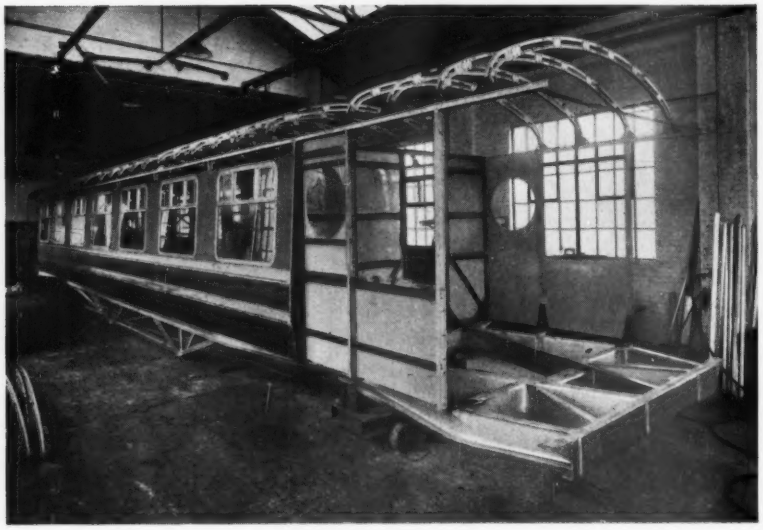
The covered semi-trailers used are 6·15 m. long (overall), 2·35 m. wide, and 3·30 m. high. The unladen weight

(*Continued on page* 18)

Mechanical horse with 57-h.p. four-cyl. diesel engine, and semi-trailer with a capacity of 7 tonnes

New Method of Carriage Construction

Unit sub-assemblies for new stock and for replacements



Framing and 20 gauge unit panels stiffened by outside longitudinal rib under erection

A SERIES of 50 steel passenger carriage bodies of 10 ft. width and 61 ft. 6 in. length for shipment from England now under construction at the works of Park Royal Vehicles Limited, exhibit a fundamental feature opposite to the general trend of carriage construction throughout the world. For some years integral welded steel construction with sides, underframe and roof as a single structure has been applied to an ever-widening extent. In these carriages, unit construction of panels has been applied deliberately as the basis.

The first reason for this is ease in knocking down and re-erection in those cases where the expense of transporting or shipping fully erected bodies is prohibitive, or where the lifting facilities are restricted. Secondly, this unit construction forms part of a principle of standardisation in which railways can buy complete panels and other sub-assemblies, easy of shipment and storage, which can be used just as required for new bodies or for replacements and repairs.

Replacement of Wooden Bodies

Furthermore, there may be an opening for efficient and economical use of this system in replacing old wooden bodies while retaining underframes and bogies that have not completed their useful life. A number of such panel sections can be ordered alone, and after cleaning and degreasing at the makers' works can be shipped and stored as completed sub-assemblies, with all necessary brackets, fixings, rivets and bolts, ready for use at any time.

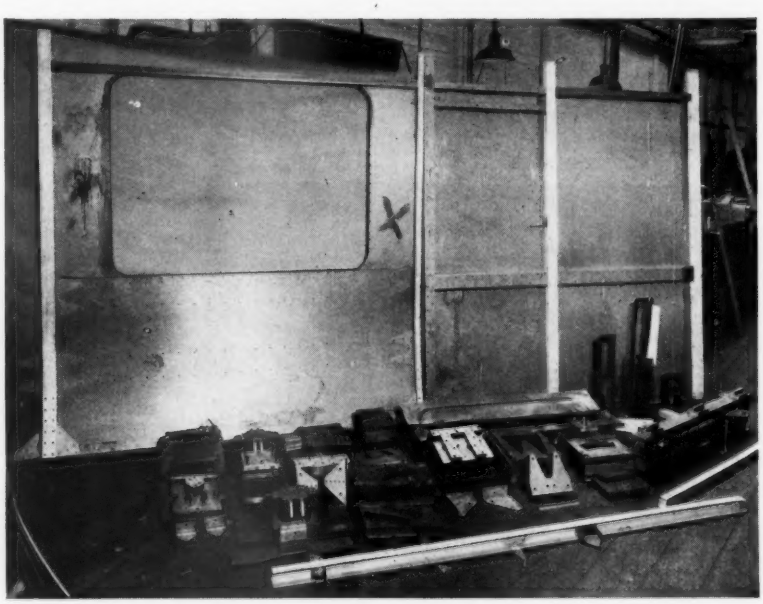
In view of Park Royal's long experience in bus-body building in series production there is another feature that has been incorporated in this unit-panel construction. That is the use of standard bus sections and methods, which gives light weight and yet adequate strength. Also the combination of sections and methods, being based on large numbers and series flow, tends to reduce production costs. A considerable amount of tooling and use of jigs is made, so that the panel units are absolutely interchangeable, and so ensure that the minimum of work other than erection is required at the user's works.

Standard Panels

Where standard panels can be adapted to several different classes of carriages, the cost of the comprehensive tooling is more than recouped. Also, the seating and interior of the body can be as the operator wishes. In the 50 bodies now being completed, some have 70 main-line seats and others 82 suburban seats.

Where complete bodies are being built the body frame can be welded up, or welded and riveted, as desired; the panel sections themselves, though fully welded up as a unit, are riveted to the framework.

To achieve complete interchangeability of sections and body panels, the bodies are designed to straight lines, without any load camber.



Section of body side, including window, lavatory, and vestibule panel

CURATOR OF HISTORICAL RELICS, B.T.C.—The administrative offices of Mr. J. H. Scholes, Curator of Historical Relics, British Transport Commission, have been moved from Euston to Clive House, Petty France, Westminster, London, S.W.1. (Telephone Abbey 6131.) Clive House is the headquarters of the Passport Office, by which name it is known locally. The Shareholders' Meeting Room at Euston will continue to be used for exhibition purposes.

Station Reconstruction and Quadrupling at Potters Bar, Eastern Region

Removing a bottleneck on the East Coast main line

Widening the bridge over Darkes Lane, Potters Bar

CONSIDERABLE progress has been made since work began last May on the reconstruction of Potters Bar Station, on the main line of the Eastern Region from Kings Cross to the North, and the widening of the line to provide four tracks instead of two.

One of the first works to be tackled was the construction of new shunting and coal storage sidings on the east side of the station and connections to a new coal stacking ground and a new goods roadway. The purpose of this was to free running lines through the station from shunting movements, so that the Civil Engineer could use these lines without hindrance during later stages of the work.

Widening Cuttings

Since the end of June onwards, cutting away and securing the slopes for the widening of the line from the south end of the station to Potters Bar Tunnel has been in progress. This has been done by driving in concrete piles to prevent the clay embankments from slipping, and digging out to the full width required for four lines. Already about 50,000 tons of clay and earth have been dug out from the cuttings, from the abutments to Darkes Lane bridge, and in the new goods yard. Some 250 tons were removed at Darkes Lane in one day. Approximately 30,000 tons of this clay and earth have yet to be excavated. Not all is being taken away but 20,000 tons have already been removed from the site.

At the same time as the other work was being done a start was made on the widening of the bridge over Darkes Lane. To avoid interrupting road traffic, temporary bridge structures were put in place over the areas to be widened and excavations were carried out beneath. The brickwork of the abutments of the new bridge has been begun.

General view of works at Potters Bar Station

Cutting south of station being widened to take four tracks

Temporary Structures

A temporary footbridge giving access to the east side of the station was brought into use in October to enable the old bridge to be demolished. Other temporary structures, such as the booking office, are also now available. This has made possible the demolition of existing platform buildings and erection of the new buildings. The first of the new building constructions to be completed was the stationmaster's house which had to be built at an early stage as the old house was an obstacle to clearance.

The first section of a new passenger subway giving access from the west side of the station has been excavated, but

the construction of a ramp on the west side, leading to it, will not be possible until old buildings have been removed. The centre section of this subway cannot be completed until the two new additional lines come into use; only then will it be possible to excavate beneath the existing tracks, at present in full use. Excavation for the new station forecourt has begun and will proceed in step with other minor but important ancillary work, such as new drainage and mains services.

When the two new lines through the station are brought into use, about next July, not only will it be possible to complete the subway, but a start can then be made on the construction of the prestressed concrete canopies over the platforms and the new platform buildings. At this time also the new booking office will be built and work will have begun on the completion of the station forecourt, with provision of lock-up garages and parking space.

A new signalbox being built should be ready for the installation of new electrical signalling equipment by May next. Preliminary work on the new signalling being carried out on the site will keep abreast of the progress of the civil engineering works, to reduce to a minimum the time necessary to bring it into full operation.

It is estimated that the station reconstruction at Potters Bar and the widening of the line of the station should be completed by the end of this year, if no unforeseen contingency arises. The work is being carried out under the direction of Mr. J. I. Campbell, Civil Engineer, Eastern Region, and the signalling work under the direction of Mr. A Moss, Signal & Telecommunications Engineer, Eastern Region.

Removal of Last Electro-Pneumatic Semaphore, London Transport

Last of type of lower-quadrant semaphore introduced with electrification of District Line

THE removal of the last of the lower-quadrant electro-pneumatic semaphores on London Transport railways, once universally used on the open sections of the District, and first portions of the Piccadilly and Hampstead lines, is illustrated in the accompanying photograph. There was one also in the depot of the Bakerloo Line near Elephant & Castle.

These semaphores were introduced in connection with the electrification of the District Line, in conjunction with track circuiting, and had e.p. train stops functioning with them. In the process of standardising the signal aspects throughout the London Transport system they have been during recent years, gradually replaced by colour-light signals with, at junctions and other points of divergence, position-light "junction indicators."

The last remaining semaphores were superseded on November 21, 1953, at Hanger Lane junction, north of Ealing Common, where a bracket post carrying two dolls and an arm on each controlled trains to Ealing Broadway or to the Harrow and Uxbridge line, the former being regarded as the "main" route.

It was along the Ealing and Harrow line that the first experiments were made with the electro-pneumatic signalling and the standard design of semaphore finally adopted was no doubt first put into operation near and through this junction.

The working is now controlled by a single long-range colour-light signal surmounted by a junction indicator; the latter is exhibited for movements to the Uxbridge line.

(Left) Electro-pneumatic junction semaphores at Hanger Lane, District line, north of Ealing Common, the last to remain in service on London Transport lines; (right) arms being removed during dismantling of the signals

CROMPTON PARKINSON LIMITED. — The fortieth annual general meeting of Crompton Parkinson Limited was held in London on December 11. In his statement circulated with the report and accounts, Mr. Albert Parkinson, Chairman & Joint Managing Director, who presided, said that the further increase of over £220,000 in the surplus from trading was particularly gratifying when it was realised that it was arrived at after deduction of £135,695 distributed as a bonus to staff. The consolidated net income of £662,713 was £264,779 more than last year. Although the current financial year had begun with a total order book less than at the beginning of the previous year, the flow of orders, said the Chairman, had recently improved. The Board's view of the immediate future was one of restrained optimism.

New Lighting System for Sidings

Modified streetlighting lanterns mounted on concrete gantries over the tracks

DEVELOPMENTS in light sources and in the design, both optical and mechanical, of lanterns have suggested new methods for the illumination of railway sidings. The basic problem on many sites is to provide light between rows of vehicles on closely spaced tracks without obstructing the limited clearance between lines with poles. One method has been to suspend lights from catenaries spanning the tracks, but with this system access to the units except those adjacent to the supporting poles is awkward, a factor which may have an effect on the standard of maintenance.

For lighting the storage and marshalling sidings adjacent to the new Willesden carriage shed, the Civil Engineer's Department of the London Midland Region decided to adopt a system of light sources located over the spaces between adjacent sidings, aligned parallel with the tracks, and to mount them on gantries with continuous protected walkways from which the units could be inspected and maintained.

Routine work in the sidings includes charging and topping-up batteries; supplying gas for kitchen cars and water for kitchen cars and coaches; and preheating stock with steam before a locomotive is attached. Supply points for all these services are available between the tracks.

These can be clearly seen at night by the new lighting, which has increased both the convenience and safety of work in the sidings. The 22 sidings are for storage of vehicles until they are due out to form trains, during which time the servicing work mentioned above is carried out.

After examining the characteristics of various alternatives, the lighting unit chosen was a modified version of the Uniway lantern, designed in conjunction with British Railways engineers and manufactured by the General Electric Co. Ltd., which supplied 333 of these lanterns for the scheme. Each lantern houses a 200-W. tungsten filament lamp. Final adjustments to this lighting scheme have been completed in recent weeks.

Pre-stressed Concrete Gantries

The gantries are of pre-stressed reinforced concrete construction, built up of standard units. They consist of from one to four spans, varying from 51 ft. 8 in. to 82 ft. 2 in., and spanning from four to seven tracks. The mounting height of the fittings is 25 ft. There are eleven gantries in the installation, at a spacing of 180 ft. The lanterns are mounted back to back in rows on each side of the walkways, and the supports are cranked outwards in such a way that the areas lighted by two corresponding units overlap under the gantry so that shadows beneath the spans are avoided.

Alignment and Focusing

Tests were made of various methods of focusing and directing the beams. Although maximum uniformity of lighting between gantries would have been obtained by focusing on a point directly below the next gantry in every case, glare would have been disagreeable to staff working in the sidings. The system finally adopted has been to focus each lantern on a point on the ground half way between it and the next gantry, in a direction parallel with the tracks. By adopting this procedure no glare from the lanterns is experienced when walking between sidings, because the angle at which the lanterns are set prevents the light sources from being seen at normal angles of view. The method adopted gives no impression of patchiness to the eye, and variations can be detected only by a light meter.

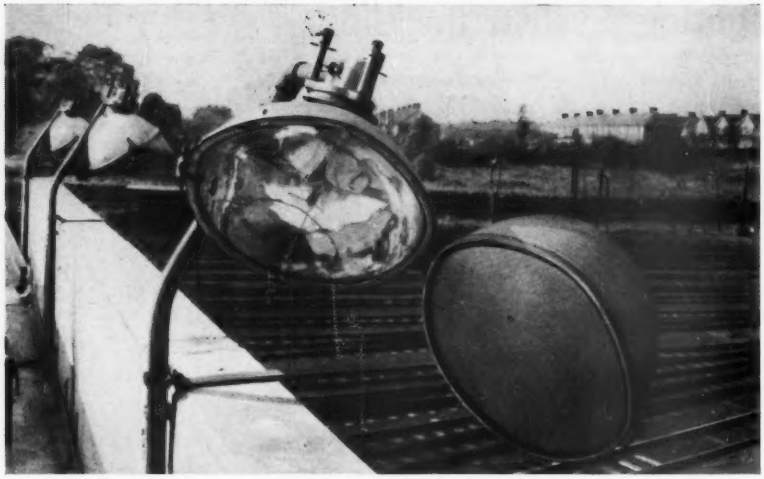
Illumination between rows of coaches, showing the clarity with which standpipes or obstructions are revealed

Access to Lanterns

The lanterns are mounted on supports made of steel tube. After slackening three screws with the fingers, a lantern can be swivelled inwards so that the front can be opened and the lamp changed or other maintenance can be performed from the walkway.

No disturbance of the adjustment in the vertical plane is involved by this operation, and the special swivel

Gantry lighting system for sidings at Willesden carriage shed, L.M.R.



Top of gantry with lantern swung inwards for inspection

mounting ensures that the lantern is held securely, without risk of falling, while being rotated.

Switching System

Switching is arranged to control the lights in three longitudinal blocks, and is operated from the central signal box. A G.E.C. Ripple control installation has been provided for this purpose. Individual isolation of groups of lanterns is arranged by means of switches on the gantry walkways.

The lighting installation provides a safe walking light in the confined spaces between coaches standing on adjacent tracks. Persons or objects in these spaces are clearly silhouetted, and at the same time handlamps used for signalling can be clearly distinguished

Supervisory staff have an excellent view of operations along the whole length of the sidings, which extend for some 640 yd.

Cleveland Automatic Single-Spindle Lathes

Design for simplicity in setting up a feature of three new types

THREE new types of single-spindle machines having been added to the range of Cleveland automatics for which the Selson Machine Tool Co. Ltd. is the sole distributor in the United Kingdom; the firm is one of the 600 Group of Companies. Extreme simplicity in setting up is a feature of the machines, which is claimed to make for production economy on short runs. Separate, infinitely adjustable forward and return feed rates for each of the five turret tools, are quickly set by positioning dials on the control panels, no cam changes are necessary.

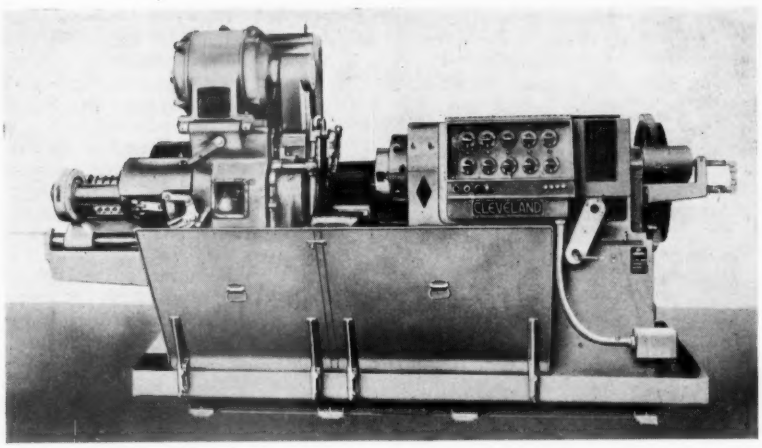
Machine Capacities

The new machines include the 4¼-in. Dialmatic model "AB," and two "AW" models of 2½ in. and 4¼ in. capacities, the principal difference between the models is in the turret tool feed drive. The two "AW" types are intended as general purpose, high-speed automatics, where speed of set-up and ease of operation are of importance.

The 2½-in. "AW" model has a spindle range of 69 to 1,920 r.p.m. 40 spindle speeds, and a turning length of 6 in., idle motion time is 11·3 sec. The 4¼-in. "AB" and "AW" machines have a spindle range of 21 to 648 r.p.m., 56 spindle speeds, and a turning length of 7⅞ in., idle time is 16·9 sec.

Each type has similar features which include a high-speed Geneva turret, and a geared anti-friction spindle head. The wide cross-slides are flame hardened and independently operated by easily adjustable drums. Universal camming is provided, with rapid hand crank stock feed adjustment.

The toggle-type chucking mechanism incorporates a specially designed master collet with quick-change pads. A safety device prevents running with set-up crank engaged. A motorised chip conveyor is available with the 4¼-in. models.



Cleveland automatic, single-spindle lathe

Railway Cartage Vehicles in Paris

(*Concluded from page* 13)

is 3·15 *tonnes*. The load capacity is 7 *tonnes*.

The chassis is protected by bumpers on the front and sides. These are 10 cm. from the body and clear of it; thus all damage while manœuvring alongside loading platforms is avoided. At the rear, two bumpers at the end of the side members are fitted with large rubber fenders 120 mm. in dia. and 160 mm. high. The body, built to the Prefabric patent, is all-metal except the floor and inside lining. The frame is made of steel sections, strongly braced, assembled by arc welding. It is fixed by brackets to the cross-members of the chassis. The side panels are fixed so that there is an air space of 2 cm. between them and the frame. Thus any light damage in working does not affect the frame. The side and roof panels are fixed by screws, clips and aluminium junction plates.

The front part of the van has a small opening with a hinged shutter; the rear is closed with a movable tailboard and a roller shutter. The inside lining is made of movable and interchangeable sections; the lower part consists of matchboarding in hardwood and the upper part of lattice boards.

RAILWAY NEWS SECTION

PERSONAL

Mr. H. B. Smith has been appointed Commissioner of Transport for New Zealand in succession to Mr. G. L. Laurenson, who is retiring.

Mr. A. Dalton, who, until his retirement last July, was General Manager of the East African Railways & Harbours Administration, has been elected Chairman of the Interim Board newly formed by the Legislative Council of the Kenya Government. This board will take the place of the existing Interim Management Committee of the Maize & Produce Control. Mr. Dalton will assume duty this month.

Brigadier R. Gardiner, C.B.E., has been appointed Representative (Designate) of the Peruvian Corporation, Limited, in succession to Mr. F. F. Hixson, the present holder of the office, who will retire in June. Brigadier Gardiner will leave England for Peru on January 9. He will take up his duties as Representative on July 1, 1954.

Mr. A. Hector Cadieux, O.B.E., Chief of the Investigation Department of the Canadian Pacific Railway since 1946 and a veteran of 40 years in railway police service, who retired at the end of last month, was born in Montreal. He joined the service of the C.P.R. in 1913. He was promoted to the post of Inspector in 1915, responsible for security when the Royal Tour of 1951 travelled over Canadian Pacific lines in Western Canada. Mr. Bouzan is a member of the Chief Constables Association of Canada and also of the International Association of Chiefs of Police.

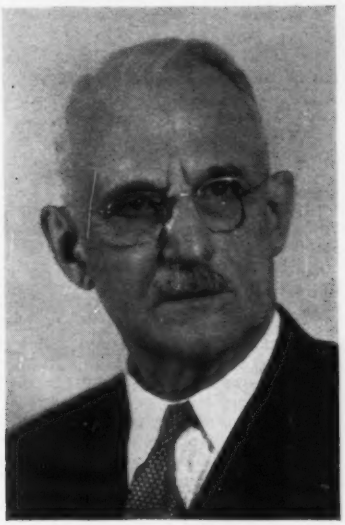
In the biographical notes relating to Mr. E. R. Dalrymple which appeared in our last week's issue, he was described correctly as Freight Traffic Manager, Central Region, Canadian National Railways. We regret that, in the caption to his photograph on the same page, it was stated that Mr. Dalrymple had been appointed Freight Traffic Manager, Central Region, Canadian Pacific Railway.

Mr. A. T. Mostert

Appointed System Manager, Cape Eastern System, South African Railways

Mr. A. H. Cadieux

Chief, Investigation Department, Canadian Pacific Railway, 1946-53



Mr. B. Bouzan

Appointed Chief, Investigation Department, Canadian Pacific Railway

Mr. Abraham Theodorus Mostert, M.A., System Manager, East London, South African Railways, who, as recorded in our October 9 issue, has been appointed System Manager, Cape Eastern System, has rendered varied service to the Administration since he joined the Railways on February 19, 1930. His first years were spent as a Transportation Pupil in South-West Africa, Pretoria and Johannesburg. Clerkship grade II came his way at the latter centre after three years of service. He occupied the grades Senior Clerk II and I in the System Manager's and General Manager's office, Johannesburg, respectively, and became Principal Clerk in January, 1942, in which grade he transferred to the office of the Minister of Transport, Pretoria, on March 1, 1944. Mr. Mostert was employed in the Ministry of Transport for eight months before being appointed Secretary to the Railways & Harbours Board. On May 15, 1947, he once again transferred to Johannesburg to take up the position of Assistant Manager, Publicity & Travel Department. He returned to the General Manager's Office in March, 1951, as Superintendent (Commercial & Road Motor Transport). He was subsequently appointed understudy to the Chief Superintendent (Road Motor Transport), and on September 15 of this year, System Manager at East London.

and, in 1921, he became Assistant to the Chief. In 1925 he was appointed Assistant Chief, in 1943, Deputy Chief, and, in September 1946, Chief of the Department. During two periods, first in 1923 and later during the 1939-45 was, he served as Acting Chief. Mr. Cadieux is a former President of the Dominion Chief Constables Association and was Chairman of the protective section of the Association of American Railroads. In 1952 he became Officer Brother in the Order of St. John of Jerusalem.

Mr. Benedict Bouzan, Assistant Chief Investigation Department, Canadian Pacific Railway, who has been appointed Chief of the Investigation Department, was born at St. John's, Newfoundland. He joined the C.P.R. at Montreal as a constable in 1920, being promoted to the position of Investigator in 1923. He served at various points on the Eastern Region of the system and aboard one of the company's steamships as Master at Arms. In 1939 he became Inspector of the Quebec district at Montreal and, in that capacity, he helped to organise the railway's air raid precaution group there. In 1943 Mr. Bouzan went to Toronto as Ontario District Inspector and a year later took over the Winnipeg position he now leaves. In his capacity as Assistant Chief he was

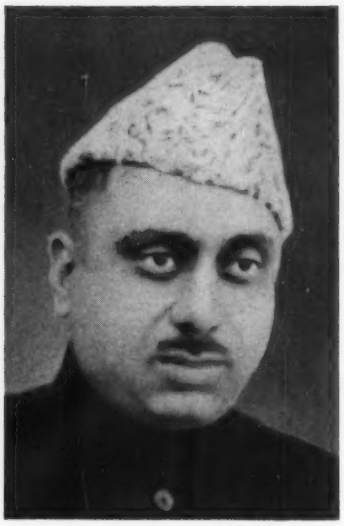
Mr. A. D. M. Brown, B.Sc. (Eng.), Chief Engineer, Iraqi State Railways, now combines this office with that of Acting Technical Inspector General of this railway.

Mr. G. Walker, M.I.Mech.E., M.I.E.E., M.I.Loco.E., Chief Mechanical Engineer, Iraqi State Railways, relinquished this position in September. He has joined the Public Works Department of the Kuwait Government. Mr. Walker has been succeeded by Mr. C. J. Hall, M.I.Loco.E., A.M.Inst.T., Deputy Chief Mechanical Engineer, Iraqi State Railways.

We regret to record the death, on December 27, at the age of 63, of Mr. Robert Wilford Peake, formerly District Engineer of the Central Argentine Railway. The funeral took place at Kingston-upon-Thames Cemetery on December 31.

The Ulster Transport Tribunal

The Governer of Northern Ireland has reappointed Mr. R. G. Manson, C.I.E., M.Inst.T., and Mr. R. Flack, Barrister-at-Law, LL.M., M.Inst.T., as members of the Northern Ireland Transport Tribunal for a further period of one year. Mr. Manson and Mr. Flack will hold office until December 31, 1954.



Mr. A. A. Shah

Appointed Divisional Superintendent, Quetta, North Western Railway, Pakistan

Mr. A. A. Shah, who has been appointed Divisional Superintendent, Quetta, North Western Railway, Pakistan, was born in 1910. He graduated from the Punjab University in 1930, and from Thomson Civil Engineering College, Roorkee, in 1933. Two years later, in 1935, Mr. Shah was selected by Public Services Commission and posted as Assistant Executive Engineer, Great Indian Peninsula Railway. His services were transferred to North Western Railway, and he was posted as Divisional Engineer in 1944. From 1947 to 1950 he officiated as Track Supply Officer, North Western Railway, and as Deputy Engineer-in-Chief, Chittagong Port Construction, 1950-51. Mr. Shah became Deputy General Manager, Eastern Bengal Railway in 1951, being appointed Divisional Superintendent, North Western Railway, Quetta, since April 18 last year.

The following staff changes are announced by British Railways (London Midland Region):—

Mr. L. C. Morgan, Chief Clerk, Curzon Street, to be Goods Agent, Wednesbury.

Mr. A. E. Dyas, Senior Railway Service Representative, Leicester, to be Goods Agent, Hinckley.

Mr. J. P. Walsh, Stationmaster, Jarrow (North Eastern Region), to be Stationmaster & Goods Agent, Beeston.

Mr. A. A. Snowball, Assistant District Commercial Superintendent, Derby, London Midland Region, British Railways, retired on December 31, 1953, after 49 years of railway service. During his railway career Mr. Snowball had the unique experience of serving on the North Eastern, Great Northern, Great Central and Great Eastern Railways and on the London Midland Region of British Railways.

We regret to record the death of Mr. W. R. Charlton, who retired in 1944 from his post as head of the Timetable & Passenger Train Section of the former Superintendent of the Line's Office, Great Western Railway, Paddington. In addition to being well known throughout his own railway system, he had a wide circle of friends on other regions, several of whom were present at the funeral which took place at Mortlake Crematorium on December 23. Mr. C. W. Powell, Assistant Operating Superintendent, represented Mr. Gilbert Matthews, Operating Superintendent, Western Region.

We regret to record the death, at the age of 63, of Mr. Levi Hine, formerly Superintendent of the Ceylon Government Railways. Mr. Hine relinquished his work with the Ceylon Government Railways in 1940, owing to ill-health.

Mr. J. Southern, A.M.I.Loco.E., has been appointed Works Manager, Robert Stephenson & Hawthorns, Limited.

Mr. H. S. Broom, Joint Managing Director, Broom & Wade Limited, has been elected President for 1953-54 of the British Engineers' Association.

Mr. I. P. Hunter, A.M.I.Loco.E., has been appointed Experimental & Development Engineer with Gresham & Craven Limited.

We regret to announce the death, at the age of 85, of Mr. S. H. Heywood, Founder & Chairman of S. H. Heywood & Co., Ltd.

Mr. G. W. P. Page, A.C.G.I., A.M.I.E.E., Press Liaison Officer, Publicity Department, British Thomson-Houston Co. Ltd., has retired. Mr. Page joined B.T.H. in 1923, having previously held appointments on *Electrical Engineering* and in the G.E.C. Publicity Department.

Mr. C. H. Kain, Joint Managing Director of Lake & Elliot, Limited, has been elected Chairman of the Council of the British Steel Castings Research Association.

Mr. W. E. P. Johnson, Joint Managing Director, Power Jets (Research & Development), Limited, will shortly relinquish his appointment with the company in order to develop his interests in technological consultancy. He will continue to be associated with the company as an adviser.

Mr. A. H. Brinkman, manager of the Portsmouth branch of the Heating & Air Treatment Division of the Brightside Foundry & Engineering Co., Ltd., has been appointed Branch Manager at Liverpool. Mr. P. Baverstock has become Branch Manager at Portsmouth.

Mr. E. S. Waddington, of Philips Electrical Limited, Industrial Products Department, has been appointed Hon. Treasurer of the Society of Engineers.

Mr. Waddington has been a member of the Council of the society since 1942, and was President, 1948-49. The society celebrates its centenary in May next.

Mr. A. J. Davies has been appointed District Engineer, Erection Department, Cardiff, of Metropolitan-Vickers Electrical Co. Ltd. following the retirement of Mr. T. L. Hutchinson. Mr. Hutchinson is being retained as a part-time consultant.

The following appointments in the General Rubber Goods Division have been announced by the Dunlop Rubber Co. Ltd.:—Mr. S. A. Monsley becomes General Sales Manager, Mr. P. A. Bridge has been appointed Sales Manager, Mechanical Group, and Mr. A. B. Rankine, Sales Manager, Domestic Group.

Mr. G. Hiam

General Freight Traffic Manager, C.P.R., 1950-53

Mr. Gerald Hiam, General Freight Traffic Manager of Canadian Pacific Railway, who retired on December 31 after nearly 50 years of railway service, was born in Montreal and joined the C.P.R. there in 1904. He was transferred to Toronto in 1914 as Travelling Freight Agent, moving later that year to Fort William as District Freight Agent. He served with the Canadian Expeditionary Force in Europe in the 1914-18 war. In 1919 Mr. Hiam began a tour of duty in the United States and was District Agent in Cleveland for seven years, later returning to Canada when appointed to a similar post at Saint John, N.B., where he remained for another two years. His next move took him back to Montreal as Assistant General Freight Agent. In 1930 he was promoted to be Assistant Freight Traffic Manager, and, in 1948, he became Freight Traffic Manager. He became General Freight Traffic Manager in 1950.

Mr. Harry Arkle, Freight Traffic Manager (Rates & Divisions), Montreal, Canadian Pacific Railway, succeeds Mr. Gerald Hiam as General Freight Traffic Manager today (January 1). A photograph and biographical details of Mr. Arkle appeared in our September 11 issue subsequent to his appointment to his Montreal position in August last year.

At the Annual General Meeting of Remington Rand, Limited, in Great Britain, held on December 14, Mr. J. S. Skinner and Mr. G. McLean were elected Directors. At a subsequent meeting of the board Mr. J. S. Skinner was appointed Managing Director and Mr. S. D. Parker was elected Permanent Chairman of the board.

We regret to record the death, at the age of 82, of Mr. F. H. B. Harris, formerly Chief Draughtsman of W. G. Bagnall, Limited. He joined the company in 1932 and was for 15 years Assistant Chief Draughtsman and Chief Draughtsman before retiring in 1947. He commenced his apprenticeship at California Works, Stoke, in 1886. Before joining Bagnalls he worked for 37 years with Kerr Stuart & Co. Ltd.

Ministry of Transport Accident Report

Irk Valley Junction, August 15, 1953: *British Railways, London Midland Region*

Colonel D. McMullen, Inspecting Officer of Railways, Ministry of Transport, inquired into the accident which occurred on August 15, 1953, at Irk Valley Junction when the 7.20 a.m. electric train, Bury to Manchester Victoria, consisting of five coaches of heavy construction, built in 1914, and carrying 100 passengers, overran the home signal on the Collyhurst No. 2 viaduct and collided at about 35 m.p.h. with the 7.36 a.m. steam train, Manchester to Bacup, consisting of four coaches hauled by a class "4 P" 2-6-4 tank engine and carrying some six passengers. Its engine was overturned and its leading coach forced over to an angle of 45 deg.

The front coach of the electric train, which was well filled, was diverted violently to the right, smashed through the viaduct parapet and plunged down 40 ft. to the river. The damage indicated a combined speed of about 45 m.p.h. The motorman and nine passengers were killed and 58 passengers injured and removed to hospital; 22 had to be detained. The accident was witnessed by a railway employee who operated a fire alarm with the result that assistance was very quickly on the scene. The line was re-opened for normal traffic at 5.35 a.m. on August 17. It was clear but cloudy. The accompanying diagram shows the lines, signals and other essential details.

It was a Saturday, when some trains did not run, including the 7.10 from Bury which normally precedes the one involved in the collision. The absolute block regulations of the former L.M.S.R. are in force of which No. 3 (c) reads:—

"Where it is necessary that a signalman who has acknowledged the 'is line clear?' signal for a train should receive intimation of its approach before it enters the section the 'train approaching' signal (1-2-1) must, where authorised, be sent in accordance with the special instructions issued."

(This signal was in force at Woodlands Road box.)

Regulation 11 requires precautions to be taken when an unusual time elapses after "entering section" is received without the train coming in sight.

Evidence

The electric train was running to time. The guard said it stopped at Woodlands Road and passed Queens Road box without check at the normal speed for a clear run to Manchester. The brakes were working correctly. He could not see any signals until they had passed them. The motorman seemed quite normal and cheerful at Bury.

The steam train left Manchester on time and was almost stopped at the home signal, which was then cleared. Its driver said he opened the regulator and was passing over the junction at 5 to 6 m.p.h.; neither he nor his fireman saw the other train till then. Shortly after the collision they saw the up home signals to be at danger.

The report gives a tabulation of the block signals for the electric train, as recorded at five signal boxes concerned with them. As Woodlands Road halt is between that box and Queens Road and the distance short between the latter and the junction Woodlands Road is required to send "train approaching" on receipt of "entering section" from Crumpsall, after which "entering section" has to be sent forward at the correct moment. All block signals have to be recorded but "train approaching" was in fact never sent.

The Woodlands Road signalman at first said he signalled the train at the times entered in his register, but later admitted those were wrong and the actual times were as recorded at Queens Road. He cleared all signals but did not send "train approaching." At 7.38 he received an inquiry from Queens Road about the train—at the Departmental inquiry he had denied doing so—and replied that it would soon be arriving at that box.

The Queens Road signalman said he accepted the train at 7.21 and received "entering section" at 7.30, offered it forward and had it accepted. He then cleared his home, starting and inner distant signals, but never cleared his outer distant until Irk Valley's had come off. In this case that signal remained "on." The junction box inquired after the train at 7.39. He telephoned and Woodlands Road replied that it was leaving, or about to leave, the halt. He saw it coming through Smedley Road bridge, however, and told the junction that it was about to pass his box; he sent "entering section" at 7.40. When offered it he did not know which particular train it was. Although booked time from the halt to the junction was 2 min. he was not concerned when the train was not in sight 9 min. after receipt of "entering section" and did not apply Regulation 11. Such an interval was not uncommon. Usually "line clear" would be received before the train reached the starting signal but not always; a train might be crossing the junction. The electric train appeared to be travelling at normal speed for a clear run.

A relief signalman was on duty at the junction. He said that on accepting the electric train at 7.29 he offered it forward but it was refused. The junction points were normal and he accepted the steam train at 7.33. It was due to pass at 7.39 and the electric one a minute later. When the steam train came in sight he had not received "entering section" for the other and telephoned to ascertain the position. Learning that Queens Road would telephone to Woodlands Road he assumed the train had not passed the former. To avoid delay he allowed the steam train to proceed. He then heard Queens Road say the electric train was passing. The engine had by then passed his box and he could do nothing.

Although he did not in fact receive "entering section" for the electric train he entered a time for that in his register. All his up line signals had been put to normal behind the last electric train, and his repeaters showed both distant signals "on" when he accepted the 7.20 train. As soon as he saw it he realised it could not stop. The speed, which did not slacken, seemed normal for a clear run. He was surprised that "entering section" had not been received by 7.38. That was why he telephoned. (For the previous three up trains that had been received within two min. of acceptance.) He had experienced no difficulty working with the adjacent signalman and had during the week refused to accept a train to enable him to make a crossing movement, and was well aware of the provisions of the Regulations. Aged 35, he joined British Railways in 1950 and trained for two months as signalman. He was confident of himself and in August, 1951, applied for a class 2 relief signalman's vacancy; he was allocated in July, 1953, to a class 1, being last examined in rules and

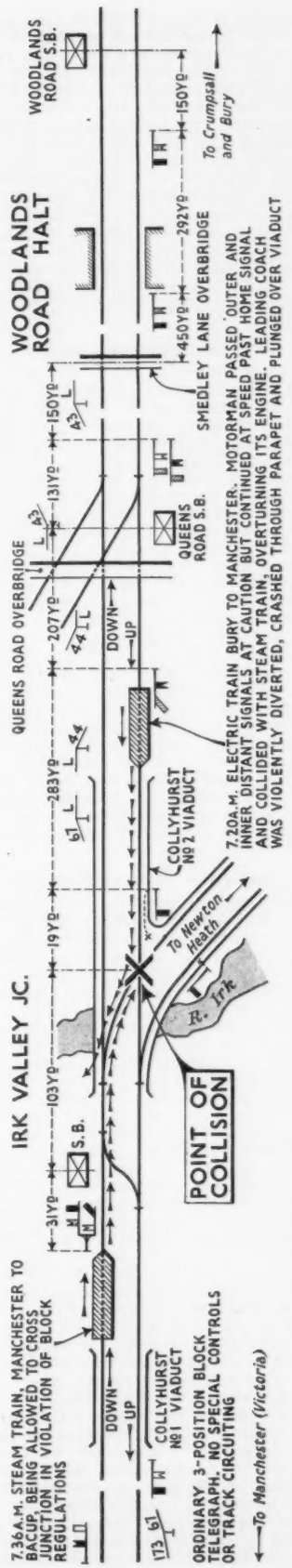


Diagram showing circumstances of accident at Irk Valley Junction, British Railways, London Midland Region, August 15, 1953

regulations in 1952. It was not the practice in the Central Division of the Region to test a relief signalman's knowledge of a box after he had declared himself acquainted with it and he was not examined in the working of the Irk Valley box in consequence. He had no special worries.

Nothing could be found to show that the signalling apparatus or the brakes on the electric train were not in proper order. Tests indicated that releasing the dead man's handle at 40 m.p.h. soon after the home signal came into view would stop a train before reaching the viaduct in 241 yd. Other tests are tabulated in the report covering the time taken in running between various signals, points, etc., to the point of collision.

Block Signalling Irregularities

Colonel McMullen felt it necessary to have a detailed check made on the block working at these boxes. This revealed a number of serious irregularities, including failure to send " train approaching "; the practice of sending " is line clear ? " in one direction on accepting a train in the other without any train having yet been offered, resulting sometimes in as much as 18 min. elapsing between that signal and " train entering section "; the giving of the latter incorrectly, well ahead of the passing of a train; entering incorrect times in the register; switching Queens Road box out without sending any bell signal, up to as long as 47 min., allegedly to visit the lavatory or get coals, and without recording it. (The signalman telephoned to adjacent boxes when doing that, but not when switching in again.)

Inspection of the working at boxes where the Irk Valley signalman previously had been on duty revealed four cases of irregular junction block working, such as that which contributed to the collision. Twice a passenger train was concerned, but he said he had not knowingly taken such a risk before.

Question of Supervision

The district signalman's inspector who was at Bury until 1951, under whom the Irk Valley signalman had trained in a box at Rawtenstall in 1950, gave details of the process usually followed. He could not recollect this man, except seeing him later in boxes, where he impressed him as capable, keen and intelligent, interested in discussing block working. He interviewed, and reported favourably on, him when he applied to be relief signalman, up to which time he had not worked any junction box. The irrularities he looked for when visiting were omissions in the register, failures of enginemen to carry out Rule 55 and incorrect signing " on " and " off " duty. Only when investigating an incident did he compare two registers, which alone would bring breaches of block working to light. Times he checked only in connection with Rule 55.

Important evidence was given by the assistant district signalman's inspector who was at Manchester Victoria for about two years up to June 27, 1953. He thought he had visited the three boxes twice each during the three months before he left the district, once to introduce his successor. He had been also to Woodlands Road and Irk Valley boxes to pass out new signalmen. It was unusual to go into one unless happening to be passing or when there was something definite to investigate. Half his time was taken up with new entrants and he had no opportunity for routine inspection. A special inspector had, however, been appointed for training new men a few weeks before he left. Normally a visit would last about five minutes, when he would sign the book, ask if everything was right, look through the last two pages of the register and see that Rule 55 was being properly observed. He did not know that Woodlands Road was offering trains long before they were accepted but agreed that examination of the register would have revealed it. Neither did he know that " train approaching " was not being sent at that box. He thought it was not usual to record that signal. (It was found that this box was the only one out of 21 on the district that did not.) Block times recorded in adjacent boxes were checked only in the special registers kept for the three-monthly train census, used for one week in place of the ordinary ones. Later they were examined for statistical purposes. If anything was noticed pointing to an irregularity the book was checked with those of the adjoining boxes, otherwise no checking was done which would reveal block irregularities. He had never found a " breach of block " except possibly when investigating a particular case. He remembered taking the Woodlands Road man for his last annual examination. He was satisfied with him but he had to be set right on one or two regulations. He considered him " average." He had found the knowledge of the Irk Valley man satisfactory in February, 1952. The Queens Road man he had not examined personally, but said he was particularly intelligent and good on rules. Certain cases mentioned in the inquiry appeared to be " breaches of block." The only way to discover them was to check carefully adjacent train registers. He did not know about the irregular switching out of Queens Road. There was no need for that. The lavatory was attached to the box.

The signalman's inspector for the district since May 4, 1953, who had 64 boxes under him, had visited these particular ones a few times for specific surposes but done no detailed checking. He concentrated on the working of the more important ones first. He studied the instructions in the box and then checked the register for the last two days or so. He compared adjacent ones only when looking into some special irregularity. He had, after Colonel McMullen's request, discovered such committed by the Irk Valley signalman previously; never before had he experienced such " breaches of block." After the accident he had found out also the irregular working at Woodlands Road and Queens Road. That should have been noticed during the Crumpsall stationmaster's thrice weekly inspections. Irregular switching out was dangerous.

The stationmaster at Crumpsall since 1951, was unaware, although it was in the instructions there, that " train approaching " had to be sent at Woodlands Roads. Of four relieving stationmasters working there shortly before the accident, for periods of 9 to 21 days, three admitted they had not read the instructions for that box, and the fourth that he did not know the signalmen were not complying with them. None was aware of the other irregularities being practised there.

Inspecting Officer's Conclusions

The motorman ran past the home signal at danger and the signalman committed a serious irregularity in allowing the steam train to cross the junction. All signals are well sited and can be seen without difficulty.

Colonel McMullen considered whether the signals could have been cleared for the electric train and then returned to danger but decided that this did not occur, Taking a given period and recording the number of times the electric train had been checked at Queens Road home signal and stopped at the starting signal or had had a clear run —though probably the distant signals were not cleared for it—he found it to be rare for the junction distant signals to be " off " for the train but on no occasion was it stopped at the following home signal. Probably when the motorman saw the Queens Road home signal at clear he concluded that the starting signal was " off " and he had a clear run. Although this may be the explanation of his action it is no excuse for his failure to act on the junction distant signals. This does not, however, explain why he did not brake on seeing the home signal at a distance in which he easily could have stopped. He was not in the cab when the collision occurred and presumably had applied the brakes at the last moment, let go the dead man's handle and rushed into the luggage compartment. There was no evidence of any electrical trouble in the cab that might have distracted his attention. He had apparently allowed it to relax, thinking he had a clear run. He was 64, and due to retire in the November. He had been in the service since 1907, as motorman since 1940, with an excellent record, and was a highly respected, abstemious man. He had been Mayor of Bury and belonged to some local public bodies.

The junction signalman was little, if anything, less responsible. He should have held the steam train or first stopped the electric one, if he wished to give preference to the former. He was misled on the telephone when he inquired where the electric train was, but that does not excuse him. During his three years' service he had a clear record and gave his evidence straightforwardly.

The other signalmen's irregularities were indicative of slipshod working, largely the result of ineffectual supervision. The Woodlands Road signalman was responsible for a number and an unsatisfactory witness. It is thought he was even deliberately untruthful. The action of the man at Queens Road in switching out his box irregularly was unpardonable. He was dishonest too, for he did not record the action, and even entered block signals neither sent nor received. It was difficult to accept his statement that the switching out was entirely connected with visits to the lavatory. Neither he nor the man at Woodlands Road was suitable for the responsible work of a signalman.

Remarks and Recommendations

The accident emphasises how wrong and dangerous it is for a driver to assume he will never be stopped at a signal seen usually at clear. This motorman's main interest was his public work. Others have such interests and it is right they should, but at work they must give their whole attention to it and never relax concentration on signals. " Warning " automatic train control would not have prevented the accident and the line would not rank high in priority for it. There were no block controls, but they would not have prevented the collision, and cannot prevent similar ones at junctions.

The signalman's initial training appears to have been adequate, but he was promoted relief man within 15 months, before working any junction. A man should have more experience, and reasonable experience of a junction before such promotion, and relief men should be tested in their knowledge of all boxes to which they may be sent, as in other Regions.

This man's other irregularities did not come to light till after the accident. Had they done so he would have been relieved

of his post earlier or relegated to an unimportant box. "Train approaching" is not a safety block signal, nevertheless it was not sent and the fact not noticed. Premature sending of "is line clear?" and then "entering section," and incorrect booking of times, were irregular and passed unnoticed, and could engender doubt on the true state of the block sections. The irregular switching out, though the signalman took precautions, could be dangerous and no mere box inspection would have laid it bare. Signalmen who come to display contempt for the regulations are certain sooner or later to make a serious mistake. Effective supervision at all levels is necessary. If it is lax, indiscipline invariably will result. Colonel McMullen does not believe it to be ineffective or signalmen indisciplined, generally; nevertheless these cases cannot be considered as merely isolated ones. There are now more young signalmen, or men without any long experience or railway background, than heretofore. After this accident a campaign against irregular working was inaugurated. Arrangements should be made for closer scrutiny of train registers and should be applied particularly at junctions and to signalmen of limited experience.

North London Travel Facilities

Mr. Alan Lennox-Boyd, Minister of Transport & Civil Aviation, accompanied by Mr. Hugh Molson, Joint Parliamentary Secretary to the Ministry, recently received a deputation from the Joint Conference of North London Local Authorities. The deputation laid before the Minister the claims of the authorities represented on the Conference for measures to improve travelling facilities primarily on the railways in this area; it pressed for an indication of future underground projects and the prospects of surface electrification of the lines from Enfield and Chingford into Liverpool Street. It also urged that the Churchbury loop should be re-opened to passenger traffic and, if possible, electrified.

The Minister said that the Government and the British Transport Commission were well aware of the travelling conditions in the area. The Commission had much in mind the need for electrification of suburban services generally. The Conference would be well aware of the proposal in the London Plan Working Party (Railways) Report. The Government was agreeable to the selection of Route "C" with the associated part of Route "D" being chosen from among the routes recommended in the London Plan Report, as the first to be made the subject of detailed planning, including estimation of cost. The final decision on a major underground railway decision such as Route "C" would have to taken in the light of the investigations which the Commission would now put in hand, and in the light of available capital resources and economic conditions at the time.

The Commission was studying the whole question of the electrification of the railways in the area. Electrification of the surface lines mentioned must be linked with the development of the tube project if excessive overloading of the lines serving Liverpool Street were to be avoided, but he would discuss the whole question anew with the Commission. The Minister told the deputation that he would invite the Commission to consider the connections of the new tube railway from the West End with the surface lines along the Lea Valley.

Birmingham Small Arms Co. Ltd.

Taxation draining badly-needed finance; prescription for meeting competitive conditions

The ninety-second annual general meeting of the Birmingham Small Arms Co., Ltd., was held on December 18 in Birmingham, Sir Bernard D. F. Docker, Chairman & Managing Director, presiding.

The Chairman said he thought it would be agreed that the results, which were predominantly those of commercial trading, were, on the whole, satisfactory. There had been a slight contraction in trading profit compared with the previous year. The figure for 1952-53 was about £86,000 lower, which with the modified provision for depreciation put the total drop at £185,000. The profit earning capacity for the past three years had been maintained on a high level.

The trading profit figures were: 1951, £2,109,922, 1952, £2,196,005, 1953, £2,110,434. The depreciation figures were: 1951, £611,414, 1952, £798,945, 1953, £699,960. The results for the past year had been derived from a much increased turnover, with prices generally reduced to meet the ever-increasing competition particularly in our export trade.

The total profit from all sources, before providing for taxation, was £2,235,888 compared with £2,326,020 in the previous year, and £2,200,338 in 1951. Taxation had exacted heavy toll of the company's liquid resources and, at £1,386,232, the total represented over 65 per cent of the profits. He could only repeat his warning against the continuance of this draining of available finance, which was badly needed now, and might be even more urgently needed in the near future to enable British enterprise to maintain its efficiency and competitive power and furnish the country with the means of buying materials and food abroad.

The net profit, after providing for taxation, was £841,910 against £799,326 in the previous year, and £680,162 in 1951.

Trading Conditions

In the Chairman's view the change from a seller's to a buyer's market in world trade came at an opportune time. It must have been obvious to everyone that the position would not go on for ever, and therefore it was timely that the change should come while the sales force in the country still remembered how to sell, after being for a long period distributors of such goods as were available. He believed that in this country we had not to worry about our ability to compete in the markets of the world. What we did need to worry about, so far as manufacturers were able, was that there existed conditions under which we could in fact compete. He gave them his prescription, which was, so far as the Government was concerned, removal at the earliest possible moment of all restrictive controls, including currency restrictions; economy in the administration of the functions of Government—about which he would welcome real evidence; reduction in taxation to provide an incentive to both industry and the individual; and abolition of purchase tax, which still in so many cases directly kept up the cost of living, and seemed in danger of quietly turning the country into seasonal trading.

So far as they in industry were concerned, it was continued attention to quality of goods produced—they needed to sell their brains and their skill; all-out effort to increase the scope of their sales by every method, and here they needed the practical sympathy of the Government.

So far as the workers were concerned, if they succeeded, full employment was possible, and for value of work given a good living was assured. To his mind, too much attention was paid by too many to basic rates of pay. The criterion had to be what a man took home on Friday night, and could the work be obtained to keep him employed? Restraint in application for advances must keep down the cost of living and make pay packets buy more goods.

Sir Bernard Docker then reviewed in detail the Group's widespread interests.

The report was adopted.

Experimental Seating in Tube Train Cars

An experimental rush-hour bench seat to provide extra accommodation for tube car passengers and to ease boarding and alighting has been introduced by London Transport on the Northern Line. A tube car has been fitted with four L-shaped bench seats, each located at bar stool height alongside one of the pairs of double sliding doors.

The bench seats are upholstered and leather covered. Each will replace an existing two-passenger seat, but will provide instead rush-hour accommodation for three passengers, and give besides four extra sq. ft. of standing room for other passengers.

Additional Accommodation

The car with the rush-hour bench seats will as a result be able to accommodate sixteen extra passengers in all. In addition, travellers generally will benefit because there will be more circulating room round the doors and consequently easier boarding and alighting. The remainder of the seats in the train will be unchanged.

No further tube cars will be fitted with the rush-hour bench seats at present. The object of running the car, it is stated, is to enable passengers to express their opinions on the new service. If the opinion is favourable, the idea will be considered for future new rolling stock.

B.T.C. AND LONDON TRANSPORT CHAIRMEN EXTEND SYMPATHY ON NEW ZEALAND ACCIDENT.—Sir Brian Robertson, Chairman of the British Transport Commission, gave the following message to a news agency at his Gloucestershire home on Christmas Day: "The staff of British Railways send their profound sympathy to their colleagues in New Zealand and to the relatives of those who perished in the disaster at Tangiwai." Mr. John Elliot, Chairman of London Transport Executive, sent a message to the General Manager of the New Zealand Railways, reading: "On behalf of the Executive and staff of London Transport I send deepest sympathy to you all on New Zealand Railways in the tragic disaster on Christmas Eve." In the Tangiwai accident, on which we comment editorially this week, 136 passengers lost their lives or are still unaccounted for; 142 were saved.

XUM

Parliamentary Notes

Earnings of Railwaymen

Mr. Harold Watkinson (Parliamentary Secretary to the Ministry of Labour) in reply to Mr. James Callaghan (Cardiff S.E.—Lab.) said on December 17 that it was estimated that at the end of November, 1953, the average level of full-time weekly rates of wages of adult male manual workers was 121-124 per cent higher than at the beginning of September, 1939, for the principal industries and services taken as a whole. For adult railwaymen in the conciliation grades of British Railways average wage rates were estimated to have risen between 126-127 per cent over the same period.

Average earnings relating to April, 1953, he added, showed that for adult males employed in industry generally, not including the railway service, there was an increase of 169 per cent since October, 1938. For adult railwaymen in the conciliation grades the average weekly earnings rose by about 154 per cent between March, 1939, and March, 1953.

For the agreement between the B.T.C. and the railway unions, concluded the previous day, which had been reached after long and very difficult negotiations, Mr. Watkinson went on, they owed a very great deal to the skill and patience of Sir Walter Monckton, Minister of Labour. He thought the whole House welcomed that agreement and that it wanted the railways and the Commission to get on and do its job of increasing the efficiency of the railways.

Railway Subsidy

Mr. Callaghan asked that if any consideration of a subsidy arose to be paid by the taxpayer, the Minister should represent to the Government that it should suspend the operation of the Transport Act, 1953, and so keep £7,000,000 in the hands of the public.

Railway Wages Dispute

Sir Walter Monckton (Minister of Labour & National Service) on the motion for the adjournment of the House of Commons on December 16 said he was glad to inform the House that, as a result of discussions which had taken place between the B.T.C. and the three railway trade unions concerned, agreement had been reached, and he went on to detail the terms as detailed on page 724 of our December 25 issue. He wished to express the appreciation of H.M. Government at the patience shown by the various parties which had resulted in the agreement, and to wish them success in their future negotiations.

He was thereupon congratulated by various Members on the skill and patience he had shown.

Road Policy

Replying to a debate on the Government road policy, Mr. Alan Lennox-Boyd (Minister of Transport) said on December 18 that the idea of tolls for bridges and tunnels where traffic would be saved a very expensive detour had not been discarded.

Possibility of Tolls

Defending the "modest" nature of the Government recent proposals for road improvements, he suggested that the economic situation might possibly require tolls to help support the increased expenditure.

He felt, however, that the freezing in the field of new construction had at least been broken, and apart from the proposals already put forward, inter-Governmental discussions were still proceeding on grants for maintenance and minor improvements.

He hoped for news before long on the question of underground parking.

National Motor Roads

Mr. Ellis Smith (Stoke-on-Trent—Lab.) had initiated the debate to urge the need for national motor roads and for the formation of a national motor road corporation.

Mr. Lennox-Boyd pointed out that 60 per cent of the money proposed to be spent on road improvements would be for industrial routes and industrial areas.

Questions in Parliament

Railway Statistics

Sir Herbert Williams (Croydon E.—C.) on December 17 asked why, in the *Annual Abstract of Statistics*, there was not included the table of receipts and expenditure of the nationalised railways similar to the statistics for the companies that used to appear in the *Statistical Abstract of the United Kingdom*.

Mr. J. A. Boyd-Carpenter (Financial Secretary to the Treasury) wrote in reply: Because of the difficulties of obtaining comparable figures for periods before the establishment of the Railway Executive of the B.T.C., no continuous series of figures was available until recently. Monthly details of traffic receipts since 1948 are given in the *Monthly Digest of Statistics*.

Transport Facilities in North London

Mr. Ernest Davies (Enfield E.—Lab.) on December 16 asked whether the Minister of Transport & Civil Aviation would make a statement on the works he proposed to authorise in connection with the improvement of transport facilities in North London.

Mr. Alan Lennox-Boyd stated in a written reply: The Government has agreed to the selection of Route C, with the associated part of Route D, from among the routes recommended in the Report of the London Plan (Railways) Working Party as the first to be subjected to detailed planning, including an estimation of the cost.

Transport Levy

The Minister of Transport & Civil Aviation was asked on December 14 by Mr. James Callaghan (Cardiff S.E.—Lab.) if demand notes for payment of the transport levy had yet been issued; and how much he expected to receive during 1954.

Mr. Alan Lennox-Boyd in a written reply stated: The transport levy is payable at the same time as vehicle excise duty. No special demand notes will be issued but the licence application form shows the amount of levy payable. In addition many registration and licensing authorities have for convenience sent a special note to vehicle owners. I estimate that the yield from the levy in 1954 will be about £4,000,000.

Road Haulage Disposal Board

Mr. Ernest Davies (Enfield, E.—Lab.) on December 16 asked what reply the Minister of Transport & Civil Aviation had given to the request contained in the First Report of the Road Haulage Disposal Board to explain the true functions of the board.

Mr. Alan Lennox-Boyd in a written reply stated: I am grateful to Mr. Davies for giving me this opportunity of correcting any misconception there may be that the Disposal Board is responsible for the actual sale of the road haulage undertaking of the B.T.C. That responsibility is laid by the Act upon the Commission itself. The board is a consultative and approving authority with the task of ensuring that the Commission's proposals give effect to the intentions of the Act.

Thesiger Committee Report

Mr. Ernest Davies (Enfield E.—Lab.) on December 16 asked if the Minister of Transport & Civil Aviation would make a statement on Government intentions as to the recommendations in the Thesiger Report.

Mr. Alan Lennox-Boyd in a written reply stated that he was indebted to the committee for the comprehensive and lucid Report, on which he hoped to make a statement after the recess.

Staff & Labour Matters

Railway Wages

Representatives of the three railway trade unions and of the B.T.C. met last week to start discussions on the wage and salary structure of British Railways with a view to correcting anomalies and giving added incentives, including differentials, in desirable cases.

Meanwhile as from December 6, railway workers are to be paid the increase awarded recently by the Railway Staff National Tribunal. This increase represents 4s. a week for men, 3s. 6d. for women, 2s. 6d. for youths, and 2s. for girls.

Engineering Employees' Wage Claim

In an endeavour to avert the ban on overtime working which the engineering employees have threatened in protest at the rejection of their wage claim for a 15 per cent increase in pay, the Minister of Labour, Sir Walter Monckton, has initiated talks with the employers and representatives of the C.S.E.U. He met the employers' representatives on December 29 and the union representatives on December 30.

The ban on overtime was decided upon last week after a conference of the unions affiliated to the C.S.E.U. and it will take effect from January 18 unless steps are taken meanwhile to avoid such action.

Transport Workers Strike in Scotland

There were unofficial strikes in Glasgow and Dundee last Saturday by transport workers employed on the municipal passenger services in Glasgow and Dundee, in protest at the recent 4s. national wages award of the Industrial Court.

RATES REDUCED FOR MOTOR CARS TO THE CONTINENT.—Owners of small cars travelling by car ferry steamer now can take their cars abroad for £4. This rate was introduced by British Railways in January 1, and applies to the Austin A.30, Morris Minor, Standard 8, Triumph Mayflower, and other small cars which have a wheel base of 7 ft. or less. The new rate is effective by the car-carrying vessels on the Dover/Boulogne, Dover/Ostend, Newhaven/Dieppe services and the Dover/Dunkirk train ferry; if the car is taken by ordinary passenger steamer the present charge of £8 5s. is reduced to £6 10s. by all routes, including the Channel Islands. The charges for taking cars abroad by the ferry steamers are already considerably cheaper than by other forms of transport, and in the case of British Railways motorists can avail themselves of the new cheap rate when crossing by the car-carrying vessel *Lord Warden* plying between Dover and Boulogne.

Contracts & Tenders

Hurst, Nelson & Co. Ltd. has received an order for 30 bogie tank wagons, with a capacity of 25 tons of fuel oil, for the Sudan Railways.

The Indian Government has placed the following contract under the 1954-55 programme:—

Baume & Marpent S.A., Marpent, France: 500 metre-gauge "MOM" type open four-wheel wagons

De Dietrich & Cie., of Neiderbronn, has received from the French National Railways an order for 30 diesel-electric shunting locomotives of 150 b.h.p. and about 30 tons weight.

S.A. Batignolles-Chatillon has received an order from the Tangiers-Fez Railway, Morocco, for four 200 b.h.p. diesel shunting locomotives of about 35 tons weight and two axles.

Fiat S.A. has received an order from Renfe (the Spanish National Railway system) for ten diesel mechanised railcars of 480 b.h.p. They are to be almost duplicates of the power cars in the 15 non-air-conditioned triple-car diesel trains supplied during 1952-53, but are to have a driving position at each end. A horizontal O.M.-Saurer oil-engine below the car floor provides the power. RIV roller-bearing axleboxes are being fitted.

Tenders are invited for broad-gauge tank locomotives for use in India. Full details are given under Official Notices on page 27.

The Special Register Information Service, Board of Trade, Export Services Branch, reports that the United Kingdom Trade Commissioner at Delhi has notified three calls for tender issued by the Directorate General of Supplies & Disposals, Government of India, for the supply of locomotive boiler tubes.

The closing dates for the receipt of tenders are:—

Tender No. P/SW.2/18585-D/IV—January 15
Tender No. P/SW.2/18586-D/IV—January 14
Tender No. P/SW.2/18430-D/IV—January 16

Tenders should be addressed to the Director General of Supplies & Disposals, Shahjahan Road, New Delhi. Information about the rates of duty payable to the Indian customs authorities in respect of imports into India, may be obtained from the Branch at Lacon House, Theobald's Road, London, W.C.1. A copy of each of the conditions of tender, specifications and drawings, is available for loan to United Kingdom firms in order of receipt of application.

The Directorate General of Supplies & Disposals, Railway Stores Directorate, New Delhi, is calling for tenders for:—

14,300 blocks brake I.R.S. type
4,700 blocks brake B.T.C. type

The latest date for receipt of tenders is 10 a.m. on January 5. Tenders should be submitted on the official tender form to the Director General of Supplies & Disposals, Shahjahan Road (Section SRI), New Delhi, quoting reference SRI/16934-D/II. If the date of receipt of tenders does not allow sufficient time for tender form to be obtained, tenderers may submit quotations on their own letter form or by telegram, so long as all essential particulars are given and provided that tender forms are applied for simultaneously and returned on the basis of advance quotations already made.

A copy of the tender form can be examined at the Railway Branch, India Stores Department, 32/44, Edgware Road, London, W.2. It is understood that the drawings may be seen at the offices of Hodges, Bennett & Co. Ltd., 59-60 Petty France, London, S.W.1, from whom copies may be purchased.

The Special Register Information Service of the Export Services Branch, Board of Trade, reports that the United Kingdom Trade Commissioner at New Delhi has notified two calls for tenders (SRIA/17099-D/II and SRIA/17117-D/II) for vacuum brake equipment.

The closing date for receipt of tenders is 10 a.m. on January 6. They should be addressed to the Director General of Supplies & Disposals, Shahjahan Road, New Delhi. One copy of the specifications and conditions of tender is available for loan to United Kingdom firms in order of receipt of application to the Branch, at Lacon House, Theobald's Road, W.C.1.

The Director General of Supplies & Disposals, Railway Stores Directorate, New Delhi, is inviting tenders for:—

250 top longitudinal cast steel (modified) drawgear, r.h.
250 top longitudinal cast steel (modified) drawgear, l.h.

Tenders are to be submitted to the Director General of Supplies & Disposals, Shahjahan Road (Section SRI), New Delhi, quoting reference SRI/16918-D/III, and will be received up to 10 a.m. on January 20.

The United Kingdom Trade Commissioner at Karachi has notified the Export Services Branch of the Board of Trade of a call for tenders issued by the Ministry of Industries (Metals & Hardware Directorate), Government of Pakistan, for steel channels, joists, tees, etc., and light railway track parts.

The closing date for receipt of tenders is 11 a.m. on January 20. Tenders should be addressed to the Director-General of Supply & Development, Frere Road, Karachi. The stores are required urgently and tenderers should quote in Pakistani currency. Copies of the specifications and conditions of tender are available for loan to United Kingdom firms in order of receipt of application to the Branch, Lacon House, Theobald's Road, W.C.1.

The United Kingdom Trade Commissioner at Delhi has notified the Board of Trade, Export Services Branch, of a call for tenders (P/SW3/18010-D/III/C) issued by the Directorate General of Supplies & Disposals, Government of India, for the supply of the following heater:—

One electric tyre heater; 75 kVA, for heating tyres up to 60 in. dia. on tread and a minimum inside dia. of 13.25 in., complete with 75-kVA auto transformers with cranes to suit 400-440 volts, three-phase, 50 cycles A.C. supply complete with central gear

The closing date for the receipt of tenders is 10 a.m. on January 5. Tenders should be addressed to the Director General of Supplies & Disposals, Shahjahan Road, New Delhi. A copy of the tender documents is available for loan to United Kingdom firms in order of receipt of applications to the Branch, Lacon House, Theobald's Road, W.C.1.

Notes and News

Vacancy for a Structural Assistant.—The Great Northern Railway Board requires a structural assistant to the civil engineer in Dublin. See Official Notices on page 27.

Assistant District Engineer Required.—Applications are invited for the post of assistant district engineer required by a British railway company operating in Bolivia. See Official Notices on page 27.

Commercial Engineer Required.—A commercial engineer with mechanical engineering qualifications, and preferably railway experience, required by London supply firm. See Official Notices on page 27.

Vacancies for Designers and Draughtsmen.—A. E. C. Limited require designers and draughtsmen for development of diesel trains. Automobile and railway experience would be an advantage. See Official Notices on page 27.

Permanent Way Institution.—On January 30, at the Headquarters of the British Transport Commission, 222, Marylebone Road, London, N.W.1, at 5.45 for 6.15 p.m., the Permanent Way Institution will be holding its annual Conversazione.

Derailment on Central Railway of Peru.—On Christmas Day a 40-wagon goods train was derailed between Chosica and Lima, Central Railway of Peru. The crew of eight were killed and the track and rolling stock were badly damaged. Traffic was suspended for two days.

Engineer, Way & Works, Required.—Applications are invited for the post of engineer, way & works, between 25 and 35 years of age, required by the Malayan Railways. Duties include taking charge of a railway district of about 150 miles, with responsibility for maintenance of permanent way, bridges and buildings, and for supervision of works within the district. See Official Notices on page 27.

New Year Holiday Arrangements in Scotland.—In connection with the New Year holidays, the Scottish Region announces that many trains and, in the case of the Clyde Coast, certain steamer services are being altered and suspended, and additional Anglo-Scottish and Scottish main-line trains run. Experience in former years has been that small use is made at the New Year holiday of many branch, wayside, and suburban stations. Twenty-nine branch lines are closed today (New Year's Day) and sixteen tomorrow. Altogether 320 stations are closed today.

Settling Brazilian Debts.—The Board of Trade has issued details of the methods of carrying out the arrangements made in October for settling Brazil's commercial debts to Britain and the Colonies. The full amount of each debt will be paid through normal banking channels in chronological order of the date of approval by the Bank of Brazil of the applications for the remittance of sterling. Interest at 3½ per cent on each debt will be simple interest calculated from October 1, 1953, to the date of discharge, and payments will be remitted in sterling, free of any deductions in Brazil, at the same time as the payment of principal. The Brazilian Government will draw £10,000,000 from the International Monetary Fund and use this sum immediately for payment of the arrears. It is expected that payments to creditors will begin early this month (January). Sterling

cover for remittance against the minimum annual sum of £6,000,000 will be provided throughout the year as regularly as Brazil's availability of sterling permits. The Brazilian Government will provide a monthly statement showing the progress of the liquidation of the arrears which now amount to about £54,000,000.

New Name Sign on Southern Region.—Because of the difficulty which has been experienced in reading name signs in sations with close-in roofs, a new sign-board has been designed. The board is in the shape of a white disc on which the customary coloured British Railways totem bears the name of the station in white. It

is hoped that the distinctive shape and the liberal use of white will make for clarity. The accompanying illustration shows the new station sign in use at Bournemouth Central.

Fuel Tax: Campaign by Road Passenger Operators.—A national campaign has been launched by bus undertakings throughout the country calling attention to the consequences to bus passengers of the tax of 214 per cent on fuel oil. The campaign is being sponsored by the Municipal Passenger Transport Association (Incorporated), the Public Transport Association Incorporated, the Scottish Road Passenger Transport Association, and the Passenger Vehicle Operators' Association.

John I. Thornycroft & Co. Ltd.—The Chairman of John I. Thornycroft & Co. Ltd., Sir John E. Thornycroft, has pointed out in his circulated statement that the trading surplus of the group, after provision for depreciation and taxation, is slightly greater than in 1951-52. The trading surplus of Transport Equipment (Thornycroft) Limited, was slightly smaller than that of the previous year. Overseas subsidiary companies in Australia, Brazil, Argentine, and New Zealand all made small losses. In commercial vehicle building, he states, existing orders are sufficient to keep the present labour force fully employed for some time. Home orders have fallen off considerably as road transport is living in uncertainty brought about by the denationalisation of road transport and the threats of renationalisation should there be a change of Government. During the year the Australian market for medium and heavy vehicles has virtually ceased to exist because of restrictions on credit and levies placed on inter-state road transport with a view to forcing back goods transport to the railways. The principal results were given in our issue of November 20, and the report and accounts were adopted at the annual general meeting on November 25.

Institute of Transport, Metropolitan Section.—The sixth annual report, 1952-53, of the Institute of Transport, Metropolitan Section, shows that the membership of the Section was 2,310 at September 30 last. The Committee records its gratitude to Mr. Frank Gilbert, who retired from the chair on September 30, for his interest in the work of the Section during his period of office.

Another Record Coal Clearance by British Railways.—For the third week running, the tonnage of coal carried by British Railways during the week ended December 19, 3,431,400 tons, was the highest for four years. The figure for the weekend of December 19-21 was 463,560 tons, the highest for two years. During the week ended December 12, 226,193 tons of iron and steel from the principal steel works and 313,000 tons of iron ore were conveyed. In the week ended 6 a.m. on December 28 over 2,196,600 tons of coal were carried, an increase of nearly 200,000 tons compared with the corresponding period of 1952.

Presentations to B.T.C. Police, Scottish Area.—Sixty-eight members of the British Transport Police, Scottish Area, paraded recently at St. Enoch Hotel, Glasgow, for the presentation of long and exemplary police service medals. The presentation was made by General Sir Daril G. Watson, Chief of General Services, British Transport Commission. The parade was under the command of Lt.-Colonel G. J. Shepherd, Chief of Police, Scottish Area, B.T.C. Mr. T. F. Cameron, Chief Regional Manager, Scottish Region, and Mr. W. B. Richards, Chief Officer (Police), B.T.C., also took part in the ceremony. The photograph reproduced below shows (left to right): *Front row* Mr. L. G. Hind, Assistant Chief of Police, Scottish Area; Mr. W. B. Richards; Mr. T. F. Cameron; General Sir Daril G. Watson; Lt.-Colonel G. J. Shepherd; *back row:* Superintendent J. Bell, Edinburgh Division; Chief Inspector James Craig, Glasgow Division; Superintendent F. Bell, Glasgow Division; and Chief Inspector J. McClafferty, Edinburgh Division.

Forth Bridge Inquiry.—The Minister of Transport & Civil Aviation announces that Sir William Arrol & Co. Ltd., the firm which built the existing Forth Bridge and has carried out maintenance work on it since, has accepted his invitation to being taken, as necessary, into consultation by the panel of experts which is examining the proposals of Sir Bruce White for placing a roadway over the bridge.

Moscow-Peking Train Service.—A regular direct railway service between Moscow and Peking is reported to commence this month by a direct route, which will enable the throughout journey time to be reduced from 14 days to nine. The route is not specified, but the report is presumed to refer to the line reported in recent months to be under construction through Mongolia. Through running to and from Moscow via the Trans-Siberian would mean that the new line must be 5 ft. gauge. The gauge of the railways serving Peking hitherto has been 4 ft. 8½ in., with break of gauge at the frontier in the case of traffic with U.S.S.R. via Manchuria.

East Midland Motor Services Limited.—Presiding at the annual general meeting of East Midland Motor Services Limited on December 18, Mr. J. W. Womar, Chairman of the company, in dealing with the report and accounts for the year ended September 30, 1953, said that the company had had, because of considerable increases in costs, to apply to the Licensing Authorities for its third fares increase; this was the direct outcome of the increase of 7½d. a gallon on fuel tax in the 1952 Budget and the increased wages resulting from Forster Arbitration Tribunal award effective in September, 1952. The revised fares were brought into operation last March. Meanwhile, he added, the trade unions had recently submitted a further application for increased wages. Fuel tax at 2s. 6d. a gallon cost

General Sir Daril G. Watson, Mr. T. F. Cameron, and Mr. W. B. Richards with members of the British Transport Commission Police, Scottish Area, after presentation at Glasgow of long and exemplary service medals

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

THE GREAT NORTHERN RAILWAY BOARD requires a Structural Assistant to the Civil Engineer in Dublin, on March 1st, 1954, at a commencing salary of £850. Applicants should have a thorough knowledge of all types of structural work and should apply giving full particulars of experience, qualifications, etc. to the CIVIL ENGINEER, G.N.R., Amiens Street Station, Dublin, not later than January 15, 1954.

BOMBAY PORT TRUST.—Sealed Tenders are invited for the supply and delivery f.o.b. of: Four "A" Class Tank Locomotives, 5 ft. 6 in. gauge; one "H" Class Tank Locomotive, 5 ft. 6 in. gauge, required for use in India. Tender documents and specifications may be obtained from SIR BRUCE WHITE, Wolfe Barry & Partners, 1, Lygon Place, London, S.W.1, upon payment of 10s. per copy and are returnable in duplicate by 10 a.m. on Friday, February 3, 1954.

CIVIL ENGINEER.—Assistant District Engineer required by British Railway Company operating in Bolivia. Candidates must have passed Sections A or B or equivalent, had some practical railway experience, be competent draughtsmen, and have had signal telecommunications experience. Commencing salary £850 p.a. plus free quarters, allowances, passages, etc. Write to Box 7249, c/o Charles Baker & Sons Ltd., 31, Budge Row, London, E.C.4.

HER MAJESTY'S COLONIAL SERVICE

APPLICATIONS are invited for the following post.—ENGINEER, WAY AND WORKS, MALAYAN RAILWAYS. Duties include taking charge of a railway district of about 150 miles, with responsibility for maintenance of permanent way, bridges, buildings, and for supervision of works within the district. Appointment is permanent and pensionable, subject to satisfactory completion of three-year probationary period, with gross emoluments (depending on age, experience, war service and marital status) in the incremental range £1,218 to £2,730 p.a. Candidates, who should be between 25 and 35 years of age, must hold a recognised university degree or diploma in civil engineering, carrying exemption from, or have passed Parts I and II of the A.M.I.C.E. examination, or be A.M.I.C.E. They must have had experience of civil engineering works on a railway; experience of modern methods of permanent way maintenance with flat bottomed rails would be an advantage. Full details on application. Apply in writing to the DIRECTOR OF RECRUITMENT, Colonial Office, Great Smith Street, London, S.W.1, giving briefly age, qualifications and experience. Mention the reference number CDE 110/60/02.

DRAUGHTSMEN, junior, with some experience in the preparation of engineering drawings for reproduction. Good lettering essential. London area. Five-day week. Write, stating age, experience and salary required, to Box 2, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

N.E.R. HISTORY.—Twenty-Five Years of the North Eastern Railway, 1898-1922. By R. Bell, C.B.E., Assistant General Manager, N.E.R. and L.N.E.R. Companies, 1922-1943. Full cloth. Cr. 8vo. 87 pages. 10s. 6d.—*The Railway Gazette*, 33 Tothill Street, London, S.W.1

GUAQUI LA PAZ RAILWAY.—Assistant accountant. Qualifications: Man who has passed intermediate examination of recognised accountancy body preferred. Knowledge of railway accounts an advantage. Preferably single between 28/35 years of age. CENTRAL RAILWAY.—Traffic Learner for training as an official. Single. Between 21 and 25 years of age. Good general education with transportation experience either practical or theoretical. Knowledge of Spanish language preferable but not essential. Apply SECRETARY OF THE PERUVIAN CORPORATION, 144, Leadenhall Street, London, E.C.3.

WANTED.—Copies of pre-1900 Midland Railway Royal Train Notices, preferably of Her Majesty's Journeys 1891 and 1897.—BOX 55, *The Railway Gazette*, 33 Tothill Street, London, S.W.1.

COMMERCIAL ENGINEER with Mechanical Engineering qualifications and preferably railway experience required by London supply firm. Age 30 to 35. Apply Box 58, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

A.E.C. LTD. require Designers and Draughtsmen for development of Diesel Trains. Premises at Boreham Wood, Herts. Work is in connection with a new project on behalf of British United Traction Co. Ltd. Automobile and railway experience would be an advantage. Permanent employment and pension scheme. Applications in writing to STAFF RECORDS OFFICE, A.E.C. Ltd., Windmill Lane, Southall, Middlesex, stating age, experience and salary required.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

the company just under £100,000 during the year under review; and it was a great disappointment that the 1953 Budget gave no relief in this respect despite the strong representations made on behalf of the whole industry, including the trade unions. Last summer their coach-air bookings to the Isle of Man via Blackpool increased considerably, and arrangements were being made, beginning next summer, for an extension of this scheme by the booking of passengers to Jersey via Blackpool Airport.

Westinghouse Brake & Signal Company Results.—A dividend of 16 per cent for the year ended September 26, 1953, is recommended by the directors of the Westinghouse Brake & Signal Co. Ltd. on £2,050,795 stock, which includes the £255,000 new stock, compared with 15 per cent for the preceding year. The directors announce that the offer to acquire the whole of the issued share capital of Gresham Craven & Heatly (Holdings) Limited has been accepted and the 255,000 new shares of £1 each fully paid up in Westinghouse Brake & Signal Co. Ltd., will be issued in exchange for the 240,000 shares of £1 each fully paid up in Gresham Craven & Heatly (Holdings) Limited. The annual general meeting will be held at noon on January 25 at 82, York Way, Kings Cross, London, N.1.

Firth of Clyde Pleasure Sailings and Excursions, Summer Season, 1954.—A programme giving information on British Railways pleasure sailings, excursions, and tours on the Firth of Clyde and Loch Lomond during the period May 29 to September 12, 1954, is in course of distribution. During the peak of the season, June 26 to August 31, there will be a daily sailing to Lochranza (Arran) and Campbeltown; and on Tuesdays and Thursdays to Inveraray (Loch Fyne). In the programme each day's excursion sailings are shown separately Mondays to Saturdays. The excursions include Arran, via Kyles of Bute (Mondays and Wednesdays); Arrochar (Loch Long), Lochgoilhead, the Three Lochs (Lochs Long, Goil, and Lomond) tour (Tuesdays, Wednesdays, Thursdays, and Saturdays); and cruise round Bute (Mondays to Fridays). Details are also given of Sunday and afternoon cruises and of the direct sailing from Glasgow Bridge Wharf to Dunoon, Rothesay, and the Kyles of Bute, which will operate daily from May 22.

Accident to Czechoslovak Express.—On Christmas Eve a Prague-Bratislava express ran into another train about twenty miles from Brno. Some reports put the number of deaths as high as 180.

British Standard for Xyloles.—The revised edition of B.S. 458 (previous edition, 1939) completes the series of revisions of the four British Standards for benzoles and allied products, the other three (B.S. 135 "Benzoles," B.S. 479 "Coal-tar Naphthas," and B.S. 805 "Toluoles") having been published in April, 1953. As before, the "Standard Specifications for Benzole and Allied Products" (1950 edition), published by the National Benzole Association, has been used as a basis for the specifications of the nine grades of xylole, and the "Standard Methods for Testing Tar and its Products" (1950 edition) published by the Standardisation of Tar Products Tests Committee, has been used as a basis for the methods of test given in the Appendices.

Heenan & Froude Limited.—In his statement circulated with the report and accounts for the year ended August 29, 1953, Mr. Charles L. Hill, Chairman, Heenan & Froude Limited, said that the group net profit before taxation, £367,113, showed a fall from the comparative figure of £394,003 last year. The net profit was £154,628 (£144,515). The output was more than in the previous year, but rising costs had reduced profit margins. Although the orders on the books of the group at the year-end were some £900,000 less than at the same time last year the balance stood at about £4,400,000; in the four years to 1952 the demand for the group's main products was exceptional and the fall from the peak figures emphasised the definite trend towards more difficult trading conditions in competitive world markets, where price and delivery dates had not to be less favourable than those of foreign manufacturers if the orders were to be secured. Delivery dates had improved during the past year and no orders were being lost on this account, but on the price question it was only too clear that it would be difficult to maintain the volume of sales even at the existing price level. The profits of Associated Locomotive Equipment Limited were less than in the year before, mainly because of the cessation of business with Argentina. W. G. Bagnall Limited had a record year of output.

Henry Pels & Co. Ltd.—The shares of Henry Pels & Co. Ltd., London, N.W.1, formerly owned by Berlin-Erfurter Maschinenfabrik, Henry Pels & Co. A.G., Berlin, and held by the Custodian of Enemy Property during the war, have been wholly British-owned since the war, and the entire prewar Pels range of machinery, built at the factory at Erfurt, now in Eastern Germany, now is being produced at the works of the North British Locomotive Co. Ltd., Glasgow. Some hundreds of British-built Pels machines have already been delivered to countries overseas. The Pels trade mark, consisting of the name PELS in a circle device, has been used before, during, and since the last war, and has been assigned to the company in the U.K. and a number of other countries in Europe and North and South America.

Pondicheri Railway Co. Ltd.—The net receipts of the Pondicheri Railway Co. Ltd., of which Mr. Charles A. Muirhead is Chairman, for the year to March 31, 1953, were £1,825 (£1,579). The Board of Directors accepted a proposal made by the General Manager of the Southern Railway (India) that the operating ratio should be based on the actual results of working the line for the years 1948-49 to 1950-51, that ratio (78 per cent) applied for the recovery of working expenses of the line from April 1, 1951, for a period of five years, and in addition charges for expenditure on open line works revenue development fund and capital separately recovered. The Working Expenses for the year ended March 31, 1952, were adjusted accordingly. Gross receipts on working were £9,620

(£8,909) and working expenses £7,503 (£7,056). The sum of £350 was provided for dividend for the year to March 31, 1953, at five per cent, tax free, on the paid-up capital. The balance carried forward was £4,676.

Forthcoming Meetings

January 4 (*Mon.*).—Institute of Transport, Berks, Bucks & Oxon Section, at 32, Thorn Street, Reading, at 7 p.m. Talk and film on "The Port of Bristol," by Mr. F. W. Arney.

January 4 (*Mon.*).—Institute of Transport East Anglia Group, at the Offices of the Eastern Counties Omnibus Company, Norwich, at 5.30 p.m. General discussion on transport problems.

January 4 (*Mon.*).—Institute of Transport, Sussex Group, at the Royal Pavilion, Brighton, at 6.30 p.m. Paper on "Some legal matters affecting transport" by Mr. G. S. W. Birch, Senior Solicitor Assistant, British Transport Commission.

January 4 (*Mon.*).—Institute of Transport, Swindon Group, at the Corporation Transport Offices, Swindon, at 7.15 p.m. Paper on "Rubber and its application to transport," by Mr. E. H. R. Schmidt, Sales Manager, Avon India Rubber Co., Ltd.

January 5 (*Tue.*).—Institute of Transport, Gloucester & Cheltenham Group, at the Midland & Royal Hotel, Gloucester, at 7 p.m. Paper on "Transport in industry," by Mr. B. R. Jones.

January 5 (*Tue.*).—Institute of Transport, Metropolitan Graduate & Student Society, at 80, Portland Place, London, W.1, at 5.45 for 6.15 p.m. Paper on "Training—Policy or routine," by Mr. P. B. Ongley.

January 5 (*Tue.*).—Permanent Way Institution, Leeds & Bradford Section, in the British Railways Social & Recreational Club, Ellis Court, Leeds City North Station, at 7 p.m. Paper on "Organisation and laying in of very big junctions," by Mr. K. H. Tredinnic, Permanent Way Assistant to Civil Engineer, Waterloo Station, British Railways, Southern Region.

January 6 (*Wed.*).—Locomotive Society of Scotland, at 302, Buchanan Street, Glasgow, C.2, at 7.15 for 7.30 p.m. Paper on "Valves, valve gears, and steam distribution," by Mr. Montague Smith.

January 6 (*Wed.*).—Institute of Metals, at the University, Edgbaston, Birmingham, from 10.30 a.m. to 4.30 p.m. Informal discussion on "Lubricants for metal working operations in the non-ferrous metals industry." Mr. W. J. Thomas will be in the chair.

January 7 (*Thu.*).—Institute of Transport, Merseyside Section, at the Chamber of Commerce, Liverpool, at 6.30 p.m. Paper on "Transport costs and charges," by Mr. G. J. Ponsonby.

January 7 (*Thu.*).—British Railways, Western Region, Lecture & Debating Society, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Paper on "The importance of South Wales area to the Western Region," by Mr. H. H. Swift, South Wales Area Officer.

January 7 (*Thu.*).—British Railways, Southern Region, Lecture & Debating Society, at Chapter House, St. Thomas Street, London Bridge, S.E.1, at 5.45 for 6 p.m. A display of Swiss travel films, by Mr. H. O. Ernst, Swiss Railways.

January 8 (*Fri.*).—The Railway Club, at 57, Fetter Lane, London, E.C.4, at 7 p.m. Paper on "Present-day progress on British Railways," by Mr. D. S. M. Barrie, Vice-President.

January 11 (*Mon.*).—Institute of Transport, at the Jarvis Hall. (R.I.B.A.), 66, Portland Place, W. 1, at 5.45 p.m. Paper on "Transport in the municipal field: problems of the day," by Mr. W. M. Little.

January 11 (*Mon.*).—Historical Model Railway Society, at the headquarters of the Stephenson Locomotive Society, 32, Russell Road, London, W.14, at 7 p.m. Talk on "The Decapod," by Mr. W. O. Skeat.

January 12 (*Tue.*).—Institution of Railway Signal Engineers, at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2, at 6 p.m. Paper on "Level crossing protection," by Mr. J. Loosemore.

January 12 (*Tue.*).—South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, in the Angel Hotel, Westgate Street, Cardiff, at 6.30 p.m. Paper on "The work of the road motor engineer's department," illustrated by lantern slides, by Mr. G. S. Halliday, Road Motor Engineer, British Railways, Western Region, Slough.

January 12 (*Tue.*).—Institute of Fuel, at the Waldorf Hotel, Aldwych, W.C.2, at 5.30 p.m. Paper on "Some new carbonisation processes under development and their relation to established practice," by Messrs. D. T. Barritt and T. Konnaway, of Simon-Carvos, Limited.

Railway Stock Market

Stock markets have closed 1953 with strength and activity, and widespread predictions that the substantial rise in industrial shares and British Funds which featured the past twelve months is likely to be continued in the early part of 1954. Two factors are influencing this belief: the assumption that the April Budget will bring another reduction in taxation; and expectations that in the next few months many more companies will end the conservative dividend policy followed in recent years and pay out a little more to shareholders.

Industry requires more capital, and if this is to be forthcoming, investors must have the stimulus of bigger dividends. Many shares are now at levels which show yields not much higher than that on War Loan; this can be justified only if dividends are increased. Another factor making for higher dividends for industrial shares is the possibility of take-over share bids which have been a feature in the past twelve months and will persist if there continues to be a very big difference between the market price of shares, which is, of course, based mainly on their dividend payment, and their break-up value based on the present-day value of assets.

Foreign rails participated in the more active conditions that ruled in markets in the past year, but, unlike many industrial shares, have not closed the year around the best levels recorded in 1953. Nevertheless if 1954 is to be an active year for markets, it can be expected that foreign rails will attract increased attention from time to time and move higher. In fact, most of the remaining foreign railway stocks are now quoted in the market at well below their break-up values. Consequently, in the event of further take-over offers, they would offer scope for substantial gains. Foreign rails, therefore, are regarded as having interesting possibilities and scope for the future.

Antofagasta ordinary stock is now 8¼, which compares with highest and lowest levels of 11¼ and 8 in 1953. The 5 per cent preference stock, now at 42½, offers a very generous yield, particularly if the remaining arrears of dividend are taken into account; highest and lowest prices in 1953 were 52 and 41.

Dorada ordinary stock is now at 61; the year's highest was 62 and the lowest 40.

The year's extremes for United of Havana second income stock were 42¼ and 15½; current price is 42. United of Havana consolidated stock is now 6⅜; the year's extremes were 6⅜ and 2.

San Paulo units have been up to 7s. 6d. and down to 5s. in 1953 and are now 5s. 1½d.

Canadian Pacifics have been up to $61¼ in the past year and down to $40¾ and are now $41½. The 4 per cent preference stock is now £70½; the year's extremes have been £70½ and £63; while the 4 per cent debentures at £86½ are within half a point of the year's best, whereas the lowest was 78½.

In the past twelve months White Pass no par shares have been as high at $41½ and down to $17¾, and are now $26⅝, while the convertible debentures are £95, which compares with the year's extremes of £138½ and £66.

Manila Railway "A" debentures during 1953 have been up to 91 and down to 70, and are now quoted at 80. The preference shares had extremes of 10s. 3d. and 7s. 3d. in 1953 and are now 8s. 3d., while the 1s. ordinary shares are now 4s., which compared with extremes in the past twelve months of 5s. 10½d. and 2s. 7½d.

Among road transport shares Southdown are now 29s. 6d., compared with the year's highest and lowest of 33s. and 28s. respectively. West Riding's extremes were 27s. 9d. and 22s. and the current quotation is 29s. 6d. Lancashire Transport are 51s. or within 1s. 6d. of the best in 1953; lowest last year was 41s. B.E.T. 5s. "A" deferred units are at 38s., their best in 1953; the lowest in the year was 21s. 3d.

Engineering shares have moved fairly closely with the general trend of markets in 1953, but towards the close of the year were affected by the higher wage demands. To take a few examples, Vickers are now 48s. 9d.; extremes last year were 52s. and 44s. 9d. Guest Keen have been up to 55s. 3d. and down to 45s. 6d. in 1953; current price is 50s. 3d. T. W. Ward are now 81s. 10½d.; the year's extremes were 83s. and 70s.

Among shares of locomotive builders and engineers, Beyer Peacock were 28s. 9d. at the time of going to press. In last week's issue they were stated in error to have been 38s. 6d.; the figure should have read 28s. 6d.

Charles Roberts 5s. shares are now 18s. 3d.; extremes for the year were 18s. 4½d. and 13s. 9d. Birmingham Carriage have had extremes of 35s. 9d. and 26s. 9d. and are now 30s. 4½d. The extremes for Vulcan Foundry were 26s. 6d. and 19s. 7½d., while the current price is 22s. 6d. North British Locomotive are now 12s. 1½d.; the year's extremes have been 15s. 10½d. and 12s. To take another example, Hurst Nelson are now 42s., which compares with highest and lowest levels of 44s. 4½d. and 37s. 9d. in 1953.